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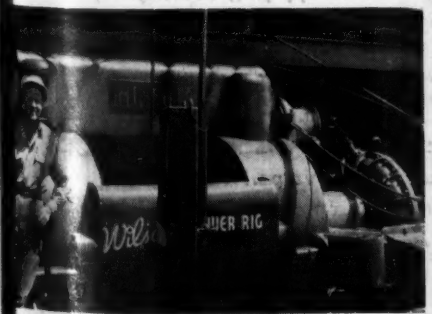

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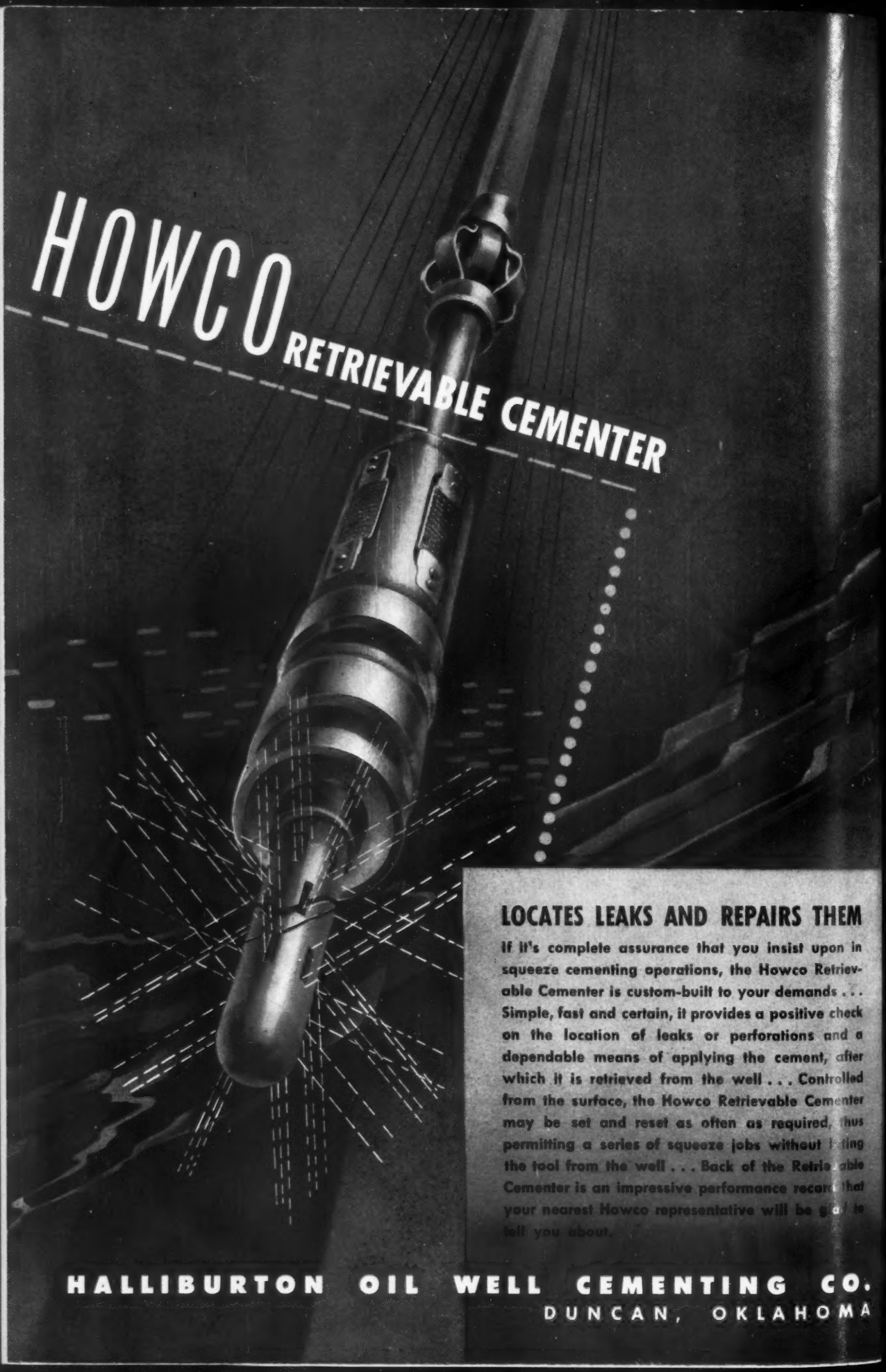

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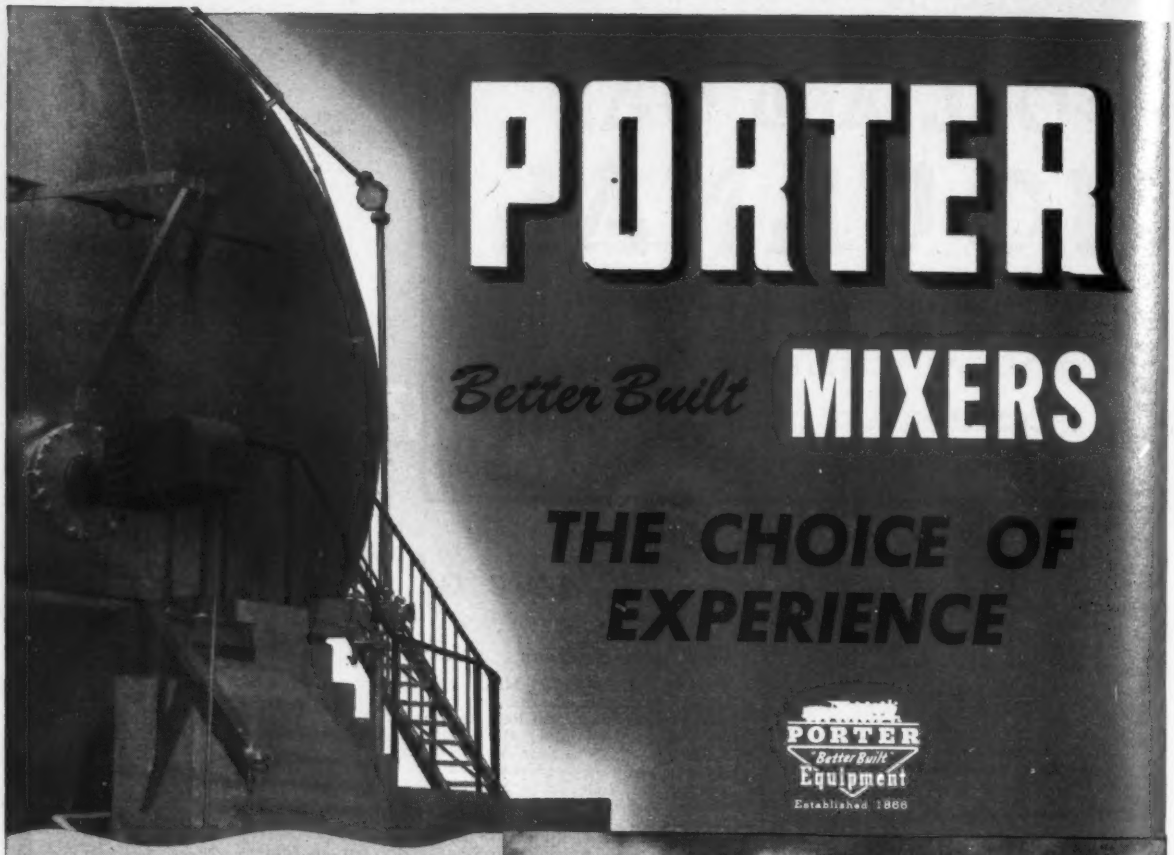

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THE OIL AND GAS JOURNAL

The Facts Speak

THE performance of the oil industry in expanding its activities to keep pace with consumer demands, and its program for greater achievements in 1948, graphically portrayed in the series of special articles in this Annual Number, should be sufficient to squelch all suggestions that government controls could accomplish more.

Crude output and manufacture of refined products last year were one-third greater than in 1941. What other basic industry can show a better record? Shipments of finished steel products, for example, are still just about at their prewar and wartime levels. Some industries have never caught up with their 1929 levels, which oil has surpassed by 85 per cent.

Records which should dumfound calamity howlers were set by the American oil industry last year in drilling, production, discoveries, refining, transportation, and construction.

Though hampered by steel shortages, the industry drilled 33,098 wells with an aggregate depth of 114,013,000 ft. Its production of 1,896,679,000 bbl. of crude was 147,907,000 bbl., or 7.8 per cent, more than in 1946, an increase three times the rate of gain during either of the two preceding years. It laid more than 8,000 miles of pipe line. It pushed its refinery crude runs to a new high of 5,053,870 bbl. daily, sent 10 per cent more natural gas to markets, and increased the output of light hydrocarbons by 13.2 per cent.

Are we running out of oil? Last year we drilled 17.3 per cent more wildcats than in 1946 and 20.6 per cent of them were successful—an exceptionally good record. In spite of the tremendous production, our proven recoverable crude reserves increased by 2,391,862,000 bbl. during the year. Discovery of new oil is keeping ahead of production. A year ago reserves were 12.2 times the then annual production; today they are 12.5 times the higher current production. Yet there are those who recommend hoarding and the use of substitutes.

For the current year the industry has definitely scheduled further increases in exploration, drilling, production, and pipe-line and refinery capacity. These forecasts are not wishful thinking nor crystal gazing, but the careful planning of an alert industry with the courage and the means to face its problems and to conquer them. The industry knows what the consuming public expects of it, has its program prepared, and is bending every effort to fulfill it.

The facts of oil, which the Journal here presents with pride, tell a story of what American free enterprise can do when permitted to meet a challenge in its own way. They are far more eloquent than the glittering promises of politicians who would substitute some sort of government regulation or planned economy.

PETROLEUM—A *PROGRESSIVE* INDUSTRY

Immediate Embargo on All Oil Exports Proposed in Congress

by Bertram F. Linz

WASHINGTON. — Imposition of a complete embargo on oil exports from the United States, except for the armed forces abroad, was proposed January 26 by Sen. Styles Bridges of New Hampshire in legislation introduced in the Senate as Chairman Charles A. Wolverton of the House interstate commerce committee was proposing similar action on the floor of the House.

The embargo, however, was only one of a number of recommendations by Wolverton in a report filed with the House, in which he proposed also the suspension of any petroleum commitment under the Marshall plan until the entire situation, including the status of Middle East production, can be reviewed; acceleration and expansion of the Government synthetic-research program, and creation of a joint congressional committee to formulate a national fuel policy. The committee, however, ruled out rationing as a "panacea."

Wolverton said that considerable action had been taken on the nine-point program to alleviate the shortage which was laid down by the committee in December, but that he was holding hearings this week to find out how far the Government agencies had carried out those recommendations. Those recommendations called for curtailment of fuel-oil and other exports, use of Navy vessels for transport of fuel oil, deferment of tanker transfers to foreign purchasers, and recall to United States trade of tankers sold, efficient use of tank cars, and voluntary industry action to secure most efficient use of petroleum facilities.

Foreign Study Asked

Pointing out that Interior Secretary Krug had testified before another committee that if Middle East oil was cut off, the European recovery program would require more oil from the United States, which would mean rationing, and that Defense Secretary Forrestal had testified that the partition of Palestine had made more insecure the pipe lines on the Persian Gulf, Wolverton declared in his report that "the progressively increasing demand for petroleum in the United States and Europe, and the reliance which hitherto has been placed on greatly expanded petroleum production in the Middle East in supplying this growing demand in both continents, make imperative a complete review of the degree of confidence which we justifiably may have in imports and foreign reserves, under changing political conditions.

"Until such review is made, it appears most unwise for the country to make any foreign commitment involving supply of petroleum and petroleum products," he added.

Wolverton declared that industry estimates of ability to provide fuel oil this winter were predicated upon a normal season without any undue cold spell and have already been nullified by the weather.

"It appears that the situation is now so grave that exports should be stopped completely until it can be determined whether further exports are damaging to the economy of this country," he reported.

Suggesting the appointment of a joint committee to work out a long-range fuel program, the report challenged predictions that the situation would eventually work itself out. But, it held, the problem is too great to be dealt with piecemeal by the dozen congressional committees which are interested in one phase or another of the fuel question.

"So far it is not apparent to the committee that either the Government or the industry has given this problem the energetic attention which it deserves," it was stated. "On the contrary, the committee is informed that these petroleum shortages can be expected to be an annual recurrence during the next few years, if not longer. From the evidence it appears that there are shortages of facilities all along the line. . . .

"If all of these facilities, on which the industry indicates it proposes to expend some $4,000,000,000 over the next few years, were available, however, it is still far from clear that assured additional crude oil is provided at the well-head source to follow through and fill these enlarged facilities. Nor is it at all evident that adequate supplies of crude remain in the ground long to sustain such flow.

"The committee does not believe that we are forced to accept the panaceas which so far have been offered to us by Government and by industry, namely: the cheerful acceptance by the consuming public of the inevitability of these tight situations; the leaving to industry to work out without governmental interference this problem which for some time now they have assured us would not arise and the solution to which they so manifestly so far seem unable to reach; or acquiescence of the superficial remedy suggested of allocating or rationing available supplies without maximum effort to effectuate a real cure through bringing supplies and demand in line."

Krug Asks Immediate Start on 2,000,000-Bbl. Synthetic Program

WASHINGTON.—Immediate development of plants to produce synthetic liquid fuels was urged by Secretary of the Interior J. A. Krug January 26 in a 128-page report to Congress on the progress of the Bureau of Mines' synthetic research program.

Specific recommendations for starting a synthetic industry, he said, would be made during the coming year, with a view to stimulating the eventual production of 2,000,000 bbl. of synthetic oil daily—a program that would cost about 9 billion dollars and require the use of 16,000,000 tons of steel.

Using the current domestic shortage as the peg on which to hang the proposed expansion of Interior Department activities, Krug emphasized also the hazards of dependence upon Middle East oil in the event of another war when, "in addition to the shipping problem, under emergency or war conditions, the Government may be faced with the problem of preventing either the physical destruction of the foreign oil fields and their equipment or possible seizure."

"It is clear now that the United States cannot rely exclusively on petroleum to supply all future requirements for liquid fuels and related products," Krug declared. "It also is clear that every effort should be made to develop new domestic sources of fuel oils and gasoline."

Krug reported it is essential that the bureau's research program be continued beyond its present April 1949 deadline, and that additional money be provided for the work.

His program for starting the industry calls for use of data now available from the demonstration-plant work in designing at least three commercial plants, one utilizing oil shale,

another using coal in the hydrogenation process, and the third using coal in the Fischer-Tropsch process.

"The establishment of a synthetic-fuel industry," he explained, "is far too large an operation and requires too much time to be undertaken under emergency or war conditions," not only because of the investment and steel required but also because of the need to train men for mining, plant operation, and other functions. "Such a program," he said, "is 10 times the magnitude of the synthetic-rubber program completed during the last war. It should be undertaken now when the country is at peace and completed over a period of 5 to 10 years.

"At this stage in the development of synthetic-fuel processes, with the competition of cheaper petroleum still prevailing and the future clouded with uncertainties," he added, "it is doubtful that private industry will find the investment sufficiently attractive to warrant starting plant construction without governmental assistance in some form."

Not Yet Competitive

Reviewing the achievements of the program in 1947, Krug said crude shale oil now can be produced on a large scale at an estimated cost of $2 to $2.50 per barrel, but that oil would not compare favorably in quality with natural crude and will become competitive only if the recent trend toward price increases continues.

About 50 bbl. daily is being produced at Rifle, Colo., and pending completion of a refinery is being used partly in laboratory engine tests and refining studies and partly as fuel oil in combustion tests in the plant's boiler unit.

In coal, the bureau has developed process improvements including heat efficiencies more than 20 per cent better than the Germans were able to attain, and estimated that a high-grade motor or aviation gasoline can be produced for about 14 cents a gallon, but that figure, twice or more the cost of gasoline from petroleum, covers only production costs and an allowance for plant amortization.

Hydrogenation, Krug said, is the only large-scale synthetic process now well adapted to the production of aviation gasoline from coal, yielding a base stock for 100-octane gasoline with good rich-mixture performance, but it does not produce a diesel fuel of as high a quality as the gas-synthesis process.

The report disclosed that the Department of Agriculture, working on production of alcohol and other liquid fuels from agricultural residues at Peoria, Ill., has demonstrated that the pentosan fraction of corncobs can be satisfactorily hydrolyzed to pentose sugars with high yield and has developed an efficient process for fermenting the sugars to liquid fuels.

NPC Gets European Oil Report; Asked to Advise on Steel Needs

WASHINGTON.—Moving swiftly to cope with current supply problems at home and abroad, the National Petroleum Council last week perfected a voluntary allocation program for submission to the attorney general and received a report from a special committee analyzing the petroleum requirements of the European recovery program.

Even as it met for its first 1948 session, however, Director Max W. Ball, of the Oil and Gas Division, was posting new questions for council action, one of which, supplementing the voluntary agreement program, dealt with the need for an agency to provide full information and advice with respect to the quantities and kinds of steel needed by the petroleum industry in the domestic and foreign fields, for use by the Department of Commerce.

Passing on Ball's request, the council agenda committee approved the formation of such a committee, at the same time acceding to a request for the establishment of a committee to study the liquefied petroleum gas situation, including production and transportation facilities.

Asking for the steel requirements committee, Ball disclosed that the secretary of commerce has advised that he will look to Interior for advice as to the needs of the oil industry for steel and other materials and equipment, and in order to furnish that assistance it is necessary that the industry develop adequate statistics.

Comment Withheld

In a voluminous report on the oil and equipment needs of the European nations as set forth by the Paris conference last year, a special committee headed by A. Jacobsen, president of Amerada Petroleum Corp., carefully refrained from comment upon the reasonableness of the estimated requirements or availabilities, but stressed that the program in toto is based on three major assumptions:

1. That the crude-oil requirements will be met very largely from Middle East oil.
2. That sufficient transportation will be available.
3. That equipment actually needed for expansion of drilling and refinery capacity will be available.

"Drastic curtailment of any of these three items, particularly of the basic oil supply or equipment, might well cause the program to fail, to the extent that the assumptions used prove invalid," Jacobsen said.

Although it set forth no conclusions, the report carried tables showing that as against the estimate of 23,000 bbl. of crude daily which will be required this year for Europe, actual exports through the first 10 months of 1947 to the 16 countries were 13,000 bbl. daily. Since the United States is a net importer of residual fuel oil, any exports would presumably be balanced by increased imports and provide no increase in availability, and the "shortage" of 130,000 bbl. daily will therefore have to be filled from other sources. In other principal products, exports required from the United States this year will be 55,000 bbl. daily, compared with an actual export through 10 months of 1947 of 110,000 bbl. daily. In specialty products, requirements and exports will be in practical balance, the former being 34,000 bbl. daily and the latter, in 10 months last year, 32,000. Total exports required from this country, other than residual, are estimated at 112,000 bbl. daily, compared with actual exports last year of 159,000 bbl.

Lack of Information Scored

Discussing the needs presented for equipment, the committee stressed the lack of adequate information given in the so-called Paris report.

It commented, however, that there is a serious shortage in the industry of drill pipe and casing, the 1948 European requirements for which are estimated at $26,254,000, of which $1,822,000 is within the CEEC countries themselves, $12,832,000 in western Germany and $11,600,000 in French and British dependencies and other overseas areas.

"Refinery equipment also is in tight supply," it was stated. "The CEEC report and supplementary information shown in the subcommittee report do not give sufficient breakdown of this or most other types of equipment to allow any specific analysis of use or availability."

While the total material requirements for 1948 are shown as $153,800,000, if autos, fees and chemicals are eliminated, they would be reduced to $118,200,000. Similar figures for 1948-51 inclusive are $580,800,000 and $473,500,000; drill pipe and casing requirements are $62,200,000 and line pipe requirements $97,800,000.

The committee emphasized that these figures represent dollar material requirements only for non-American companies, with the exception of France and Germany, "and therefore do not, by any means, indicate the total export requirements for the

petroleum industry outside the United States. They do not include, for example, the material requirements of American companies for refinery construction in Europe and other foreign areas or for maintenance and increasing crude-oil production and transportation facilities outside the United States by American owned companies."

Particular attention was called to the comment of the Harriman committee that CEEC requirements, plus projected expansion by other countries including the United States, exceed the world capacity to produce and it is extremely unlikely that we can export as much equipment as is requested, with the further comment that CEEC expectations concerning European equipment production seem unrealistically high.

"In the light of this statement, the committee feels that most careful screening of material requirements is essential," the council was told.

Hallanan Reelected

Organizing for 1948, the council reelected Walter S. Hallanan, president, Plymouth Oil Co., as chairman and N. C. McGowen, president, United Gas Co., vice chairman. The council also retained George A. Hill, Jr., president, Houston Oil Co., as chairman of the agenda committee and W. Alton Jones, president, Cities Service Oil Co., as chairman of the appointments committee.

A report of the tanker transportation committee, submitted by James P. Patterson, vice president Pan American Transport Co., showed that since the council's recommendation last year that 30 T-2 tankers be added to the East Coast fleet, 16 have been put into service with more to be added this month and by the middle of February a total of 40 will have been put into the service, bringing the East Coast tanker situation into balance.

The council approved reports, previously made public, of the committees on petroleum supplies and availability, Illinois River winter transportation, and military and government petroleum requirements. The recommendations of the first committee, it was stated, have been carried out to considerable and quite effective extent, and the Illinois River committee stated that the waterway is being and will continue to be kept open.

On the recommendation of Bruce K. Brown, vice president, Standard Oil Co., (Ind.), the council approved transfer of the work of the committee on military aircraft fuels productive capacity to the military petroleum advisory committee which works with the Armed Services Petroleum Board.

Reporting on the industry's voluntary fuel conservation program, John M. Lovejoy, president, Seaboard Oil Co., announced that a $300,000 supplementary advertising program will start this week. The program which the public relations committee of the American Petroleum Institute has been pushing now is estimated to have reached every fuel oil consumer in the 26 states affected by the shortage, the circulation of the newspapers, radio stations, and letters in which conservation has been urged having touched the 1,000,000,000 mark.

At the suggestion of William F. Humphrey, B. I. Graves has been appointed to represent Tide Water Associated Oil Co. on the council. Most of the new members recently appointed were present at the meetinge, it was stated.

As he took over the top post in the council for the second year, Hallanan denounced propaganda to the effect that it had been set up with premeditation and deliberation to bring the industry under federal control.

"This council is the strongest fortification against the encroachment of federal regimentation," he said.

"It affords the industry an opportunity to prove its case that it has gone all out in its efforts to meet the enormous increase of petroleum requirements and that it is anxious to continue to put forth its best efforts in providing sufficient quantities of petroleum and its products to meet the public demand if there is no infringement on our freedom of action."

Hallanan told the council there is nothing to indicate that the problems with which it must deal will decrease but, on the contrary, "our problems seem not only to go deeper, but also to multiply overnight."

But, he added, while some apprehension over government control through the council remains, there is today "a general acceptance by the large part of the petroleum industry and the public at large that the N.P.C. has filled a useful and worthwhile function and that the public interest has been well served through its activities."

I. P. A. A. Asks Voluntary Oil-Goods Allocation

A PLAN for voluntary allocation of oil-field tubular goods within the oil industry was endorsed last week by the executive committee of the Independent Petroleum Association of America in its 2-day quarterly meeting in Midland, Tex.

The committee recommended:

1. The appointment by the governor of each oil-producing state of a five-member state committee composed of two independent and two major oil company representatives and one steel industry representative.

2. Appointment by the state committees of district subcommittees of the same type.

3. Shipment of tubular goods, as directed by the state committees, to district stockpiles to be allocated by the district committees on a priority basis.

Under the plan the goods would be allocated first for exploratory wells; then for wells to protect leases expiring within 6 months, offset wells under contractural obligations, No. 1 locations on any lease, and other wells, in that order.

The committee pointed out that the total supply of oil-field tubular goods is about the same as during prewar years, although both total steel production and demand for petroleum products have increased more than 50 per cent during that period.

The committee also went on record as being opposed to the export of pipe. The Marshall plan, it said, anticipates a demand for additional tubular goods from this country which would further curtail supplies available for domestic use by 20 per cent.

Crude Output Sets New All-Time High

FOR the third consecutive week, crude-oil production in the United States last week set an all-time record.

Production during the week ended January 24 averaged 5,350,505 bbl. daily, 9,370 bbl. daily higher than the previous week's high of 5,341,135 bbl. daily.

Mississippi accounted for the major part of the increase with a gain of 6,800 bbl. daily to 117,200. Other gains were shown by Oklahoma, up 2,450 bbl. to 409,450; Arkansas, up 1,200 to 87,000; Kansas, up 1,300 to 295,850; California, up 1,300 bbl. to 934,900; and Wyoming, up 1,370 to 132,760.

Texas and New Mexico remained unchanged and Louisiana showed only a slight drop of 400 bbl. daily.

The new record output figure was the sixth in consecutive weeks above the 5,300,000 bbl. daily mark.

DAILY AVERAGE CRUDE-OIL PRODUCTION (BBL.)

Week ended—	
October	5,318,415
November 1	5,288,380
November 8	5,292,390
November 15	5,303,045
November 22	5,314,450
November 29	5,303,235
December 6	5,285,805
December 13	5,273,930
December 20	5,299,955
December 27	5,310,820
January 3	5,302,360
January 10	5,329,145
January 17	5,341,135
January 24	5,350,505

U. of T. Starts Field Study

AUSTIN.—The University of Texas' Bureau of Economic Geology is undertaking a comprehensive summary of Texas oil fields, with geological societies over the state assisting in gathering the data.

this week

GOVERNMENT—Embargo on oil exports except for military forces abroad provided in legislation introduced in Senate. . . . ¶Report filed in House asks suspension of oil commitments under Marshall plan pending review of Middle East production. . . . ¶Interior Secretary Krug urges immediate development of plants to produce synthetic liquid fuels. . . . Says United States cannot rely exclusively on petroleum for future requirements. . . .

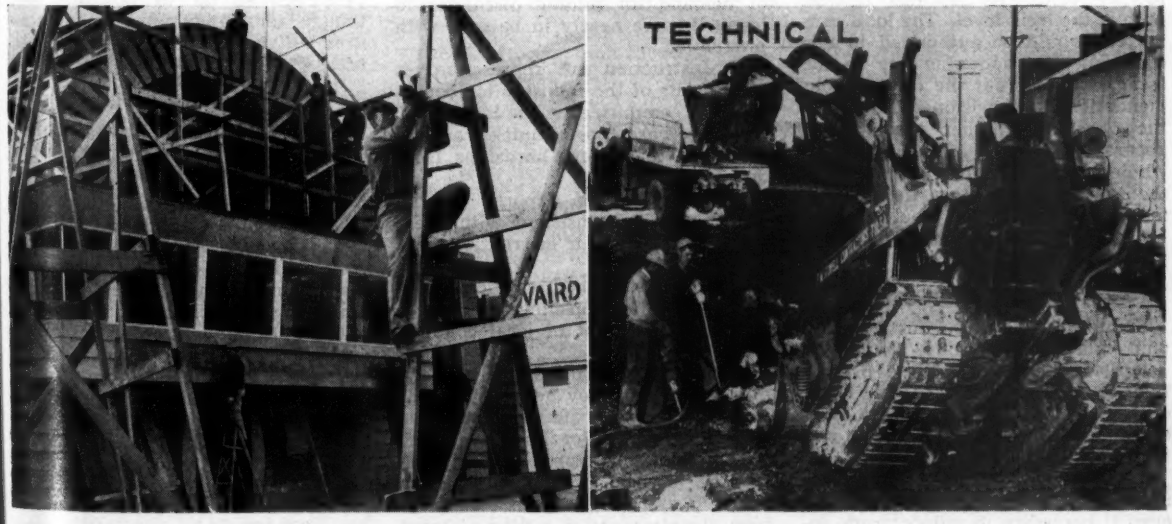
TRENDS—For week ended January 24 crude-oil production averages 5,350,505 bbl. daily. . . . A new all-time record for the third consecutive week and an increase of 9,370 bbl. daily over previous week. . . . Mississippi accounts for greatest part of the net gain. . . . ¶Refinery runs to stills average 5,344,000 bbl. daily during week ended January 17. . . . This represents an increase of 55,000 bbl. daily over previous week's runs. . . . ¶Well completions for week ended January 24 total 673, a drop of 66 from previous week. . . . Wildcat completions total 107 as compared to total of 136 for previous week. . . .

PIPE LINE—Great Lakes Pipe Line Co. announces completion of the $30,000,000 expansion and modernization program. . . . Line's capacity increased 50 per cent. . . . Makes Great Lakes system largest capacity products pipeline system in United States. . . . ¶Humble Pipe Line Co. is installing most modern-type equipment at Hearne and Baytown stations. . . . Completion expected by latter part of February. . . . ¶T. R. Jones will head Pipe Line Contractors Association. . . . Organized in Dallas last week by 14 pipe-line contracting firms. . . . ¶Army Department will put back in service wartime Canol pipe line between Skagway and Fairbanks, Alaska. . . . Line to transport diesel oil for military consumption. . . . Less than $5,000 is estimated to condition line for use. . . .

INTERNATIONAL—Russia increases price 100 per cent on petroleum products furnished Austria. . . . Later rescinds order. . . . Vienna radio observes original move was attempt to weaken Marshall plan. . . . ¶Venezuelan Government intends to get more for its royalty oil. . . . New concerns attempt to enter Venezuelan market. . . . ¶Socony-Vacuum Oil Co. of Venezuela is rigging up for second test in the Barinas area. . . . Information on company's discovery well remains tight. . . .

REFINING—The Texas Co.'s extensive expansion and modernization program progresses. . . . Current refinery expansion plans expected to be completed by mid-1949. . . . ¶British American Oil Co., Ltd., plans expansion of Montreal refinery. . . . Cost estimated at $12,500,000. . . . Completion expected in early fall of 1949. . . . ¶Root Petroleum Co. is installing new facilities for topping unit. . . . ¶General Petroleum Corp. plans expansion of Torrance plant facilities. . . .

INDUSTRY—National Petroleum Council completes voluntary agreement under Taft Act for submission to attorney general. . . . I.P.A.A. executive committee proposes voluntary allocation of oil-country tubular goods within industry. . . .



Typical of the current activity on the grounds of the International Petroleum Exposition in Tulsa are these two scenes of the preparation being made for the first postwar exposition, set for May 15-22. At left is the Jones & Laughlin Supply Co. building, now being enlarged and remodeled at a cost of $40,000. Right: Construction under way on the Cooper-Bessemer Corp. building, which also is being enlarged and remodeled. William B. Way, general manager of the exposition, this week said more than 100,000 oil men's courtesy tickets already have been sold to exposition exhibitors. The tickets are sold to exhibitors in lots of 100 or more at a special price of 25 cents each

20-Point Program to Increase and Allocate Oil Approved by Council

WASHINGTON.—The oil industry last week became the first to ready a voluntary agreement under the Taft act for submission to the Department of Justice for antitrust clearance.

By unanimous agreement of the National Petroleum Council, a program outlined by a special committee headed by Dr. Robert E. Wilson, chairman of the board of Standard Oil Co. (Ind.), was sent to Interior Secretary J. A. Krug for submission to the attorney general.

The speed with which the latter acts and the extent of any clearance he grants will show clearly whether the administration is sincerely attempting to make the Taft prescription work or, as has been charged, is trying to sabotage the voluntary agreements so as to provide support for its demand for mandatory controls.

The 20-point program outlined carries many of the ideas of the plans previously submitted by industry representatives to the Tobey and Wherry committees, but the heart of the plan is a provision for appointment either by the secretary of the interior or the NPC of local committees to advise the industry and local, state or federal authorities, the first of which would be set up in Districts 1, 2, and 3.

In presenting the committee report, Wilson emphasized that the problem of distribution must be dealt with at the local level. The local committees would be authorized to take such concerted action as may be necessary to carry out the other recommendations, a provision which raised the question whether the attorney general's clearance of the plan as a whole would be sufficient to cover their action or whether the committees, individually, also would have to be granted immunity from antitrust prosecutions.

Summary of Recommendations

Summarized, the committee's recommendations were as follows:

1. Establishment of crude production allowables equal to maximum efficient rates by all state regulatory commissions east of the Rocky Mountains.

2. Maximization of crude runs by refineries during the next 60 days, even if necessary to reduce crude inventories substantially, and maintenance of refinery operations at recent high levels, if possible.

3. Further adjustment upward of the distillate yield at the expense of gasoline during the next 60 days.

4. Provision of sufficient steel to enable the industry to continue its expansion program, without which "the nation's entire economy will be retarded."

5. Maximum effort by all petroleum importers to import crude oil to supplement domestic supplies.

6. Provision of added tanker capacity, in keeping with present plans.

7. Adoption by all companies of seven-day loading and unloading of tank cars for a 60-day period.

8. Continuation and further extension of exchanges and short-term loans of products to save transportation.

9. Equitable distribution of available fuel-oil supplies "among the various categories of customers and channels of distribution at all levels of distribution."

10. The handling of hardship cases at the local level "by those who understand the problems."

11. Stimulation of further cooperation in the conservation program.

12. A campaign to urge both domestic and industrial consumers who have alternate or standby heating equipment which could use other fuels to utilize such facilities.

13. Acceptance of inventory reduction by customers during the next 60 days to build up stocks to relieve hardship cases.

14. Checking of the rate of growth of demand for middle distillates to bring it more nearly in balance with production.

15. Instruction of representatives of all units of the industry to cooperate with committees at the local level, to relieve hardships as quickly as possible and to prevent hardships from developing.

16. Limitation of exports "to the extent possible consistent with overall necessities of our international relationships."

17. Adoption of conservation measures by gasoline consumers.

18. Establishment of local committees.

19. Immediate submission of the plan to the attorney general, so that it may become quickly operative "where the need for its use arises."

20. Review of accomplishments under the program within 90 days by the NPC and, on the basis of experience, development of a plan to meet the gasoline situation during the coming summer and the heating oil supply program next winter.

While most of the recommendations can be adopted by individual companies without the necessity of industry-wide agreement, Wilson told the council, the program will be adopted more expeditiously and more completely if all companies are certain that the activities outlined will not be held to violate the antitrust laws.

For that reason, he said, the attorney general's approval should be issued in such manner "that various features of the plan can be adopted in particular communities where the need for its use may arise without resubmission of the program for that particular community to the attorney general for approval.

"The committee further recommends," he added, "that in the event the above recommendations are approved by the attorney general, the secretary of the interior, in issuing his written request to individual members of the industry for compliance with such plan, frame his request in such manner that the plan may be placed in effect immediately and everywhere needed. This procedure will avoid delays incident to securing clearance from the secretary of individual requests in respect to each individual transaction and will facilitate prompt action in providing quick relief in this emergency."

Wilson emphasized that care must be exercised that the incentives and initiative of all suppliers be preserved.

"The thousands of individual units of the industry, stimulated by these incentives," he said, "have adopted many unique but successful practices that have resulted in substantially increasing supplies available. The industry is bringing to the market the greatest quantity of petroleum products in its history and cost factors have been largely disregarded. The conditions which have made possible the accomplishments to date must be preserved so far as possible, even though temporary emergency measures will be necessary in many local areas."

Texas February Allowable Set at 2,612,502 Bbl.

An allowable designed to produce 2,397,888 bbl. of crude oil daily in Texas for the month of February was set last week by the Texas Railroad Commission. This figure represents an increase of approximately 30,000 bbl. daily over January's production. Net allowable for February was set at 2,612,502 bbl. daily.

East Texas field remained on a 20-day producing schedule for February, which, being a 29-day month, would add about 19,000 bbl. daily to production. In addition to crude oil production Texas is expected to produce 220,178 bbl. daily of natural gasoline and distillate during February.

February allowable for Kansas remained at 290,000 bbl., the same level that has prevailed for several months.

International

WORLD-WIDE OIL DEVELOPMENTS

Venezuelan Crude Prices May Rise As Result of Pending Royalty Deals

THE announced intention of the Venezuelan Government to obtain a higher price for its royalty oil, amounting to one-sixth of the crude produced in that country, might lead to an upward revision of the entire Venezuelan oil-price structure, now tied to United States Gulf Coast prices, in the opinion of some observers.

Last fall the government began taking some of its oil in kind, rather than in cash at the prevailing price, and has sold it at premiums over what the producers had been paying. Brisk bidding for this oil, and the proposals of new concerns to enter the Venezuelan market, have caused producers to consider offering similar premiums in order to retain the royalty oil, thus leading to a dual price system.

Other crude-oil producing companies in Venezuela are expected to sign agreements similar to the one announced last week in Caracas whereby Creole Petroleum Corp. will pay a higher price for that portion of royalty oil for which the Venezuelan Government has not already made other commitments.

Arrangement Will Be Reappraised

This announcement was made by Juan Pablo Perez Alfonso, minister of development, and Arthur T. Proudfit, Creole president, and means that Creole will thus retain practically all of the royalty crude oil which the government might have taken in kind. As a matter of fact, relatively little of Creole's royalty oil had been committed by the government to be sold elsewhere.

Reportedly, the Creole arrangement is for a 2-year period, following which the situation will be reappraised.

Meanwhile, it is known that the Venezuelan Government previously offered officials of the Petrol Terminal Corp. two sites in Venezuela for the erection of a refinery. This refinery, to have a daily throughput of from 15,000 to 30,000 bbl., presumably would use royalty oil, but if producing companies purchase the royalty oil they otherwise would turn over to the government, this deal might not be completed.

The higher price which Creole is to pay the Venezuelan Government—and which other producing companies probably will pay—reportedly will approximate or equal the price which the government could get for its royalty oil on the open market.

While it is not known officially whether the oil companies reminded the Venezuelan Government that the program of selling royalty oil to the highest bidder might someday boomerang in view of the rapidly expanding volume of Middle East oil, the government is doubtless conscious of this possibility.

However, the government had already served notice that it intended to obtain a higher price for its royalty oil and had taken approximately 25 per cent of it in kind, selling it to outside sources at premiums well above the established market price.

Approximately 70,000,000 bbl. of Venezuelan royalty oil will be involved in the current negotiations between producing companies there and the Venezuelan Government, according to a report from Caracas. The new prices probably will average around 20 cents higher per barrel, a figure which compares favorably with premiums which have been and are being offered for the royalty oil by outside interests.

Shortly, the Venezuelan and Argentine governments are expected to announce a barter agreement whereby Venezuela will exchange around 4,000,000 bbl. of royalty oil, over a 2-year period, for Argentine meat.

U. S. S. R. Austrian Price Hike Rescinded

RUSSIAN occupation forces in Austria unexpectedly rescinded, late last week, their earlier order that the price of petroleum products furnished Austria would be increased by 100 per cent as of January 22.

Diplomatic observers, as well as an announcer on a Vienna radio station, bluntly observed that Russia's proposed tactics not only would have severely crippled Austria's economic set-up, but that the 100 per cent hike was a step in a series of moves which the Soviet would take in an effort to weaken the European recovery program (Marshall plan).

The United States is the only other source upon which Austria draws for supplies of petroleum products, and supplies these at approximately $55 a ton ($8 a barrel) in contrast with Soviet prices of $93 a ton ($13 a barrel). Under the proposed legislation, which has been withdrawn, Austria would have been forced to pay $200 a ton ($28 a barrel). Failure to obtain oil, at any price, would seriously cripple Austria's industrial activities.

If the Russian-imposed 100 per cent increase had gone into effect, it would have been far cheaper for Austria to import all its petroleum products from abroad. According to American oil sources, approximately 239,000 tons (1,792,000 bbl.) were exported from Austria in the first 10 months of 1947. About the same amount was sold to the Austrians for home consumption, and the remaining third was sold at fantastically high prices on the Austrian black market.

Since the Russians took over operation of the Zisterdorf oil fields in 1945, Austria has been supplied with about 70 per cent of its basic fuel-oil needs from this area. Since the fields lie in the eastern portion of the nation, the Soviets have maintained control, despite continued protests by United States, British, and Dutch government officials that Russian control was not specifically approved under the Potsdam agreement.

Forrestal Supports Continued Exploration In Alaska's Naval Petroleum Reserve

WITH support from Defense Secretary James Forrestal for continued exploration after the present program is completed, those in charge of Naval Petroleum Reserve No. 4 in Arctic Alaska are now completing plans for 1948 activities. In his appearance before the House armed services subcommittee *(The Oil and Gas Journal, January 22, page 38)*, on January 19 Secretary Forrestal indicated his belief that important oil reserves would be discovered and urged that the subcommittee recommend to the House appropriation committee that funds be provided for work in this most northern of United States possessions as existing funds will be largely expanded by the close of this year.

A tentative program has been approved this year and supplies required for this work are largely on hand as a result of the water shipments received at the Point Barrow headquarters last August. Should Congress provide additional funds the present program will be changed in some details and plans to extend over 4 or more years will be made effective.

International
WORLDWIDE OIL DEVELOPMENTS

This discussion deals with plans for continued exploration in the U. S. Naval Reserve No. 4 consisting of 35,000 sq. miles of Arctic Alaska. This operation was visited by C. O. Willson, editor of The Journal, in July 1947 and activities there were reported in a series of articles appearing in the August 9, August 16, and August 23 issues of 1947.

One of the two rotary tests which spudded in last June has been completed. Early January reports showed that drilling was under way at 1 Simpson after a month's delay due to a fishing job. Casing has been set at 5,954 ft. This test is located a short distance from the Arctic Ocean (see accompanying map). Decision to drill a test at this point was based largely on geophysical information and oil seepages. It is expected that this operation will be shut down in the near future.

Drilling at 2 Umiat was stopped at a depth of 6,212 ft. and the test is being abandoned. This test is about 5 miles east of 1 Umiat which was the first test drilled on the reserve. It was abandoned at a depth of 6,005 ft. in late 1946. The second Umiat test offset a core test from which resulted the first indications of commercial oil in Arctic Alaska. Approximately 40 bbl. of high-gravity, low-cold-test crude oil have been recovered from the core hole for testing purposes.

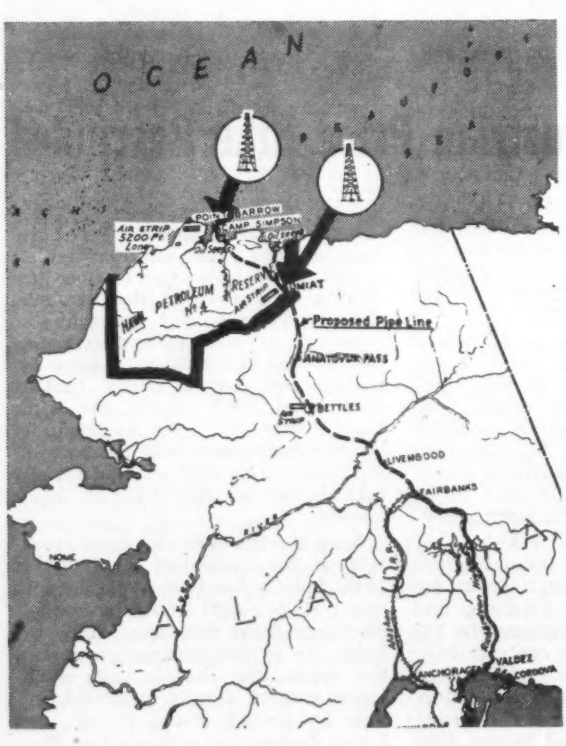
Reports from those in charge of the operations show that with completion of Simpson test practically all phases on 1947 exploration program were completed as scheduled. The work is under the direction of Comdr. W. G. Greenman, director of all Naval petroleum reserves. Operations are carried on by Arctic Contractors (Hoover, Curtice & Ruby, and C. Y. Lytle Co., and Green Construction Co.) The geological work is carried on by the United States Geological Survey with funds provided from the $9,600,000 appropriation by Congress in 1945 after initial work had been completed by the Seabees during the latter part of the war. The work is directed from Fairbanks with the main operating camp at Point Barrow and a smaller camp at Umiat, 175 southeast of Point Barrow on the Colville River. From Fairbanks all personnel and part of the supplies are transported by air under contract with Wien Airlines.

In addition to the two wildcat tests exploration work in 1947 was carried on by four geological crews within the reserve and one crew east of the present boundary of the reserve. United Geophyhical Co. maintained two seismograph crews starting in the late spring to the early fall of 1947 and one airborne gravimeter. Detailed reports covering all phases of the operations were made at a meeting of the operating committee held in Washington in November.

While the two tests of the Upper Cretaceous in the southeastern part of the reserve have been disappointing, favorable structural conditions will result in the drilling of at least two additional tests on closed anticlinal structures that have been defined in geological surveys. It is also planned to test shallow sands in that area with cable-tool equipment which is now available. In addition to the oil found in the core test previously mentioned five favorable oil showings were reported at shallow depths in the 1 Umiat test.

It is planned to drill two tests in the Fish Creek area in the northeastern part of the reserve where oil seepages have been confirmed. The long-range program also calls for tests of the Lisburne limestone in the Barrow-Simpson-Meade River area following additional geophysical work.

A revision of the boundaries of the present reserve has been discussed to include an area to the east of the present boundary. Consideration has also been given to the opening of promising oil areas in the Arctic area



Map of Alaska showing location of Naval Petroleum Reserve No. 4 and the two rotary tests

outside the reserve to private operators. The entire area was withdrawn for exploration by private operators during the war period by the Department of Interior.

Two Parties to Start

According to present plans two geological parties will start work again as soon as weather conditions permit. The 1948 program calls for three geophysical parties, two of which will operate in the Tertiary basin in the northeast section of the reserve and the third will explore for indications of the Lisburne limestone in the northwest sector. The cable-tool equipment which will test the shallow sands in the Umiat area may later move to the Maybe Creek area for an anticline test.

At the meeting of the operating committee it was recommended that the U.S.G.S. place two geological field parties in the general area of the reserve. One of these parties will be airborne to obtain geological data in the areas already covered and to search for additional porosity and microfossil samples.

It is planned to move the National 50 rotary rig which drilled the two Umiat tests to the Fish Creek area during the winter months. Practically all equipment used in the reserve operations has to be moved to the operating location during the winter months while the surface is frozen. Supplementary supplies and equipment are transported by air during the summer months.

Should Congress approve a program for continuing the exploration work in the reserve after 1948, it planned to purchase a heavy drilling rig for deep drilling and this will be transported to Point Barrow by boat next August. Final plans covering 1948 operations will be agreed upon at the March 31 meeting of the operating committee to be held in Washington, D. C.

Peruvian Government Inviting Inquiries

WASHINGTON.—A dispatch to the Department of Commerce from the American embassy at Lima, Peru, January 26 reported that the Peruvian director of mines and petroleum would like to hear from American drilling contractors from the standpoint of working for the Peruvian Government.

The report did not give any information as to what the government may have in mind, but department officials expressed the belief that Peru may be considering some development of its own resources under contract, along the line of recent Mexican activities to that end.

Socony-Vacuum Preparing For Second Barinas Test

Socony - Vacuum Oil Co. of Venezuela is now rigging up for its second test in the Barinas area, south of the Andes in western Venezuela. A steam rig is being used.

Information on the company's discovery well, which was bottomed at 9,766 ft., with casing cemented at 9,529 ft., still remains tight. Presumably the well is a commercial producer. It showed crude oil of 26° A.P.I. gravity. The second test is located about 2 km. (a little over a mile) from the discovery well.

Spring Hill's Eleventh Well Nears Completion

Drilling of the eleventh well in Chile's Spring Hill field, Tierra del Fuego, is nearing completion, with the depth of the twelfth well beyond 3,000 ft. A third rig shortly will be in operation there, according to an official of Corporacion de Fomento de la Produccion.

International

Commercial wells so far have been capped, due to lack of transportation facilities. However, during 1948 Chile's plans for the construction of a pipe line and a refinery in that country are expected to be in a much more advanced stage.

Initial production of the ninth well was between 600 and 700 bbl. daily. All wells are located in the southernmost tip of the Western Hemisphere. Producing depths in Spring Hill field is around 7,500 ft.

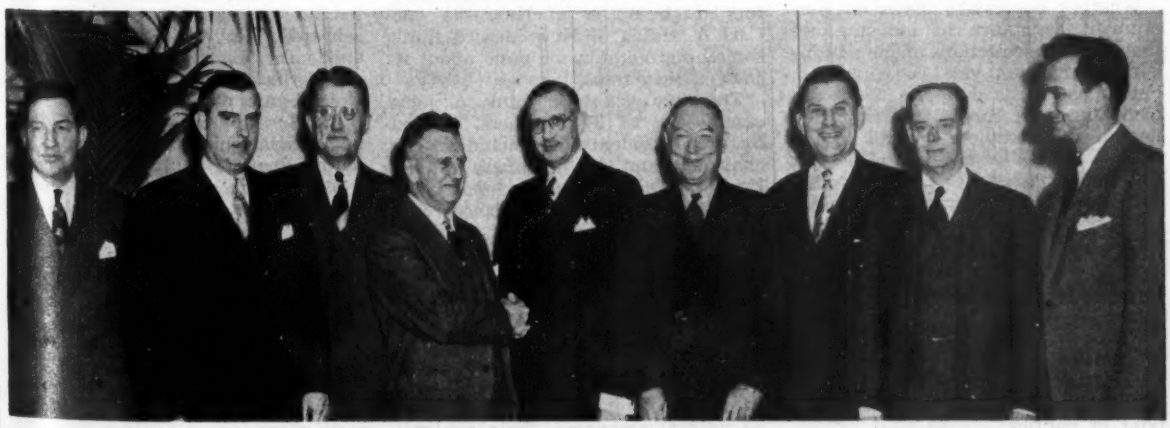
Polish Crude Production Running Ahead of 1946

The output of indigenous crude oil in Poland for the first 9 months of 1947 was greater than Poland's production for the entire 12 months of 1946, according to official information released recently in Warsaw.

For the first 9 months of last year, crude oil production was 95,000 tons, or 2,633 bbl. daily, compared with 117,000 tons, or 2,400 bbl. daily, for the whole of 1946. Polish refineries (exclusive of the large and modern refineries which Russia obtained as a result of the Yalta Agreement) turned out 131,000 tons, or 3,638 bbl. daily, of petroleum products for the first 9 months of last year, compared with 117,980 tons, or 2,423 bbl. daily, for the 12 months of 1946.

Gasoline accounted for only 4,139 tons, or 113 bbl. daily, for the first 9 months of 1947, compared with the entire refinery output of 3,694 tons, or 75 bbl. daily in 1946.

(For a detailed account of postwar petroleum activity in Poland see The Oil and Gas Journal, January 1, 1948, page 26).



New officers of the New York chapter of Nomads, shown here, are: Steward D. Beckley, secretary; Henry J. McAdams, vice president; James W. Reed, regent; A. V. Simonson, regent and retiring president; Val R. Wittich, Jr., president; W. D. Robinson, sergeant-at-arms; Russ V. McIntire, assistant secretary; Joseph B. Roberts, Jr., treasurer; and Charles P. MacDonald, Jr., assistant treasurer. Marvin D. Rasher, assistant sergeant-at-arms, was not present when photo was taken

WASHINGTON WATCHING

BY BERTRAM F. LINZ

Subsidies Talked Again

WASHINGTON.—The possibilities of increasing the output of scarce materials by direct government financial assistance appear to be receiving considerable thought in some sections of the Government.

That the military, at least, have been thinking along that line was revealed last week by Defense Secretary James Forrestal who, before a House armed services subcommittee, threw out the suggestion that the Government might find it advantageous to subsidize secondary-recovery operations.

Forrestal did not enlarge upon his suggestions, which also included expansion of the Bureau of Mines' synthetic-fuels research to the construction of a few commercial-size plants which would translate into actual experience the assumptions on costs and other factors to be gathered through the operation of pilot plants.

He made it clear, however, that the department favors maximum importation of Middle East oil in times of peace so that our domestic supplies may be conserved for an emergency. The United States, meanwhile, should press development of the tidelands oil resources and the Alaskan exploratory project, and wildcatting and synthetic development should be vigorously pushed.

Through his testimony, Forrestal gave evidence that oil has been the subject of much discussion within the department. He touched upon but did not discuss the California naval reserve, the favorable possibilities of which have led the Navy to seek the enlargement of the dedicated area, a strategic asset on the West Coast.

Whether Forrestal's views on government assistance to industry are shared in other sections of the administration has not yet been disclosed, but industrialists who see in the demand for price control the first step toward the complete control of industry generally believe also that government assistance to increase the output of scarce commodities might be the last step toward a planned economy.

Lobby Probe Politics

OBSERVERS in Washington see in the Department of Justice plan for a grand jury investigation of lobbying registrations more than a taint of politics.

There are indications, they say, that it may be a move aimed at silencing organizations seeking to get their viewpoints on pending legislation before Congress and an attempt to tie a "big business" tag on opposition to such measures as the administration's price and allocation controls.

Reportedly, the department's criminal division believed that failure of any organization to comply with the registration requirements could in most cases be dealt with informally, but the special group appointed by Atty. Gen. Tom Clark has successfully pressed for a stronger approach.

The criminal division is said to have considered the law as an entity, but Irving R. Kaufman, special assistant in charge of the Lobbying Act enforcement drive, is represented as holding that each section of the act can be treated as though it were a separate measure, thus reaching into fields not included in the bill as a whole.

Thus, while one section covers organizations principally engaged in attempting to influence legislation, another calls for reports from organizations spending any money on such activities, which could be interpreted to mean that no trade association which interests itself in legislation would be free from the requirements.

This also is said to have another angle, involving tax questions. Dues paid trade associations are deductible as business expenses, but if an organization registers and thus admits its activities are designed to influence legislation the Commissioner of Internal Revenue might hold the dues of members were paid for that purpose and therefore are not deductible.

New Reason to Pry

THE Interior Department will be 100 years old in 1949, and Senators Hugh Butler of Nebraska and Carl A. Hatch of New Mexico think something ought to be done about it. In fact, they think it rates a party.

The two senators think a joint commission of 24 members, headed by the President and including the chairmen and six members of the House and Senate public lands committees and six distinguished citizens should be appointed to make plans for a celebration of the department's centennial.

They think, too, that this commission should make a report to Congress by next May 15, so that legislation can be enacted to carry out plans which include "a report to the nation of 100 years' stewardship of its natural resources, their exploration and conservation, their present condition and extent, and their future availability and development."

All this adds up, to the uninitiated at least, to another investigation of the oil situation. Seems like the oil section of the proposed report could be written from the record of the many investigations started in the last few months and reach the same conclusion—that only time and the oil industry can develop the liquid fuel needs of the country.

Hemisphere Oil Plans

HEMISPHERE petroleum is expected to be a major subject of discussion at the inter-American trade conference scheduled to open in Bogota late in March.

The agenda for the conference has not yet been developed but Washington officials have left no doubt that the oil position of the Americas will be thoroughly reviewed.

The trend of the discussions is expected to be an effort to develop at least the basis of an agreement regarding the development of Latin American oil resources, particularly in countries which have not engaged actively in the industry.

This of necessity would involve consideration of the laws of most of the countries, which now do not permit the entry of American companies on an independent basis.

The most potent arguments which can be advanced for relaxation of present restrictions are the financial and economic benefits to the Latin American countries, such as have accompanied development in Venezuela, Colombia, and Peru, and mutual defense.

While the oil resources of other countries are not comparable with those of Venezuela, there is enough oil in several of them to contribute to the maintenance of hemispheric self-sufficiency if adequately developed.

The State Department has not disclosed any plans it may have to bring the subject of oil up at Bogota, but officials have indicated that the matter is under study which has been stepped up as a result of the realization that our own shortage may last as long as 3 years or more.

Travel vs. Restrictions

THEY'RE not particularly concerned about the possibilities of fuel oil rationing, but travel associations on the West Coast are certainly up in the air over possibilities of gasoline restrictions.

Certain that any rationing of gasoline would keep away thousands of Eastern vacationers, West Coast interests are closely watching trends

and developments in Washington to determine the advisability of going ahead with big advertising campaigns to attract visitors.

The Westerners point out that they would be at a tremendous disadvantage in the event gasoline rationing were adopted. Vacation points in the East are many and easily reached by train, but they ruefully admit that comparatively few Easterners, especially those with not too much money, will spend the time and funds required to go West by train merely for sight-seeing purposes.

Representatives of some of these groups already have apprised their congressmen of the loss of revenue which West Coast business would lose under rationing, but they cannot very well come out with an open campaign of opposition to restrictions.

Aramco "Planted" State Official, Senator Says

WASHINGTON. — A probe of oil sales by Arabian American Oil Co. to the Navy turned last week into an investigation of charges by Sen. Owen Brewster of Maine, chairman of the Senate war investigating committee, that Max W. Thornburg, special assistant to the Undersecretary of State from 1941 to 1943 had been "planted" in that job. Thornburg, then a director of Standard Oil Co. of California, is now in Bahrein.

Brewster made his charge January 24 in the course of a hearing at which former Interior Secretary Harold L. Ickes testified he had nothing to do with the Navy's purchase of Abarian oil at $1.05 per barrel after Aramco originally offered it to the Government at 40 cents if it would help finance King Ibn Saud.

Ickes explained that transaction was a purely military one over which the Petroleum Administration for War had no control.

Brewster, declaring that Thornburg had been "planted" in the department to protect the oil companies, elicited from Ickes an indication that the former oil administrator held the same view and the gratuitous comment that "we," P.A.W., "had something to do with his severing relations with State Department."

Brewster also introduced letters indicating that the oil companies doing foreign business in 1940 were "pro" whatever country they were dealing with.

A letter from J. A. Moffett, then chairman of the board of Caltex Co., to H. D. Collier, president of Standard of California, stated that "we, Caltex, are pro-English from the standpoint of the war."

"You are doing a very large business with the Japanese and therefore must take as strong a pro-Japanese position as possible to maintain this business," he added.

Ickes testified that Standard and The Texas Co., parent concerns of Aramco, exerted pressure on him to back lend-lease aid for Saudi Arabia. He refused, the former secretary said.

Ickes disclosed that despite the general impression that the military conferred with P.A.W. on oil matters, "our directives were disregarded with impunity whenever the Army and Navy wanted to disregard them." He was not consulted, for instance, on the Canol project, which he had consistently opposed.

Following the hearing, Brewster said he would hold another session January 29 to hear former Rear Admiral Carter, who signed the Navy's $1.05-a-barrel contract, and that Thornburg had been advised by cable of the charge against him and invited to appear before the committee in his own defense.

Federal Oil Tax Receipts Show Huge Gain in 1947

WASHINGTON.—Federal revenue from the three oil taxes topped $552,000,000 last year, an increase of nearly $59,900,000 over 1946, it was reported January 29 by the Internal Revenue Bureau.

Collections from the gasoline tax amounted to $455,350,210, compared with $413,953,294 in 1946, while $78,649,309 was secured from the levy on lubricating oils, against $73,442,151, and $18,029,961 from the tax on pipeline transportation, against $15,174,591, bureau figures showed.

Year-end collections were at a high level, the December receipts including $49,040,907 from gasoline, against $36,994,502 in November; $8,552,554 from lubricating oils against $5,068,259, and $1,799,999 from pipe-line transportation against $1,023,186. The collections in December 1946 were $40,126,639 from gasoline, $7,236,676 from lubricating oil and $1,513,949 from pipe-line transportation.

Houston Nomads to Install Officers at January Ball

HOUSTON.—Homer E. Thornhill, of Thornhill-Craver Co., will be installed as 1948 president of the Houston chapter of the Nomads at the annual inaugural ball January 30 at the Rice Hotel.

Thornhill succeeds Charles E. Richards, Gray Tool Co., who becomes national regent. The chapter's second regent will be C. L. Clausel, A-1 Bit & Tool Co. Other new officers elected at the January meeting of the organization, are: Furniss M. Prell, Hughes Tool Co., vice president; Jack A. Barnes, Trinity Portland Cement Co., secretary-treasurer; G. R. Winder, Well Equipment Manufacturing Corp., assistant secretary-treasurer; W. H. Griffin, Baker Oil Tools, Inc., sergeant-at-arms; and Ed M. Fontaine, National Tank Co., assistant sergeant-at-arms. Harry E. Estes, A-1 Bit & Tool Co., was reappointed executive secretary.

Six Countries to Finance Products Purchases

THE State Department this week completed the financial composition of the European aid program for the 15 months ending June 30, 1949, showing the countries which would have to depend upon new United States funds to pay for the petroleum products they are to receive.

The report showed that six of the 16 countries will be able to finance their oil imports out of their own dollar earnings, and in this way Norway will cover $15,000,000 worth, Portugal $10,000,000, Sweden $58,300,000, Switzerland $12,000,000, Turkey $7,500,000 and the United Kingdom $190,600,000, all figures being on the basis of July 1, 1947, prices.

The United States then will have to provide $318,400,000 to procure oil for nine other countries and Western Germany, Austria not being scheduled to receive any oil during the period.

The demand on the United States will be $10,900,000 for Belgium and Luxemburg, $13,400,000 for Denmark, $146,500,000 for France and dependencies, $8,300,000 for Greece, $1,700,000 for Iceland, $13,000,000 for Ireland, $61,200,000 for Italy, $32,200,000 for Netherlands and dependencies, and $22,500,000 for bizone Germany and $8,700,000 for the French zone.

The department emphasized that the distribution of commodities by countries and sources of funds indicated in the tabulation is only an approximation of the program as it would actually be developed, and there might be shifts resulting changes in the trade between the several countries and between them and the United States.

Brown Named to Head NPC Steel Committee

WASHINGTON.—Russell B. Brown, Independent Petroleum Association of America, Washington, was named January 26 by Chairman Walter S. Hallanan to head a special NPC committee on petroleum industry steel requirements to study and report from time to time the quantities and kinds of steel needed by the oil industry here and abroad.

Creation of the committee was requested by OGD Director Max W. Ball and approved by the council at its January 22 meeting.

Refinery Trend Away From Small Units, Government Survey Shows

WASHINGTON.—The trend toward construction of catalytic-cracking units instead of thermal cracking, in addition to other trends in the refining industry, is gradually bringing about a reduction in the number of small refiners, it was developed this week in a study of the industry by Winona Patton of the Department of Commerce petroleum section.

Evidence of this trend was noted before the war, but it was accelerated during the war years when catalytic-cracking capacity increased nearly tenfold, the report showed, and that it will continue into the future was demonstrated by the large proportion of plant-expansion funds earmarked for catalytic-cracking units in the industry's postwar program.

As a result of these developments, plants with capacities under 10,000 bbl. daily had declined in late 1946 to 11.4 per cent of total capacity, as compared with 15.3 per cent at the beginning of 1940. In the same period, 18 companies with plant capacities in excess of 50,000 bbl. per day increased their share of the industry's capacity from 74.1 to 75.6 per cent, while 41 companies with capacity between 10,000 and 50,000 bbl. per day jumped from 10.6 to 13 per cent. As against 59 companies with capacities in excess of 10,000 bbl. per day, there were 252 companies with capacities under that figure. At the beginning of 1940 there were 363 companies operating plants of less than 10,000-bbl. capacity.

Postwar Problems

The greatest problems facing the smaller refiners in the postwar period are those of maintaining a stable source of crude supply, the construction of catalytic-cracking capacity, operation of larger and more complex facilities than those presently owned, and the securing of adequate capital to build and maintain the increased capacity, Miss Patton reported. At the present time, marketing product offers no problem although the small company is in a relatively unfavorable marketing position because of the general preference of consumers to buy branded gasoline.

In the report, the department also took a look at the future. The study indicated the improbability of jet motors being adapted to general commercial purposes and put in use in sufficient numbers to have any appreciable effect on the pattern of fuel consumption by 1950, but their consumption of greater quantities of currently cheaper and less-volatile fuels could be an important and disturbing factor in the market 10 years later.

Similarly, development of liquid fuels from sources other than crude oil is unlikely to affect the consumption pattern 2 years hence and their effect on the 1960 market is still highly conjectural, but there is need "for thinking of the more-distant future demands in terms of a total liquid fuel need, met from several interrelated sources, rather than a demand for products from crude oil only," it was stated.

Demands Forecast

The 1950 total demand for motor gasoline is estimated at 936,000,000 bbl., including 10,000,000 bbl. for export and 6,000,000 bbl. military consumption. Aviation gasoline demand is placed at 35,000,000 bbl., including 14,000,000 bbl. for the military and 3,000,000 bbl. for export.

Total fuel-oil demand in 1950 is estimated at 831,000,000 bbl., 361,000,000 of it distillates. The outlook for kerosine is at least 105,000,000 bbl., 5,000,000 of it for export, while consumption of lubricating oil is indicated at 38,000,000 bbl. domestically and about 15,000,000 bbl. for export. Consumption of all other products in 1950 is estimated at approximately 220,000,000 bbl.

The estimates in the report add up to an indicated consumption, including exports, of 2,180,000,000 bbl. of all products in 1950, or 5,970,000 bbl. daily.

"Accepting the demand outlook arrived at in this study, or even a somewhat lower level," the report concludes, "it at once becomes apparent that existing capacity will have to be maintained and some 250 to 300 thousand barrels daily of new capacity added by 1950 if product requirements are to be met. Not much more than 50,000 bbl. per day has become available or been announced for construction since the October 1, 1946, capacity tally.

Stanolind Pipe Line to Construct Office Building

Stanolind Pipe Line Co. has authorized immediate construction of a 10-story office building at the northwest corner of Sixth Street and South Cincinnati Avenue, Tulsa. The program calls for initial completion of five floors not later than July 1, 1949. The other five floors will be built when needed for later requirements.

This will be the only office building occupied solely by a major pipe-line company.

Land on which the building is to be built is being leased by Stanolind Pipe Line Co. from the University of Tulsa for 50 years. On expiration, the entire building will become the property of the university.

Senate Hearings Set on Rizley Natural Gas Bill

WASHINGTON. — A Senate interstate commerce subcommittee will take another look next week at the Rizley-Moore bill to revise the Natural Gas Act.

Sen. E. H. Moore of Oklahoma has called a hearing for February 4 on the measure, which after passage by the House last year failed to get by the Senate committee before adjournment of the session.

At last year's hearings, in April and July, Federal Power Commission officials urged that action be delayed until their report on the natural-gas investigation was before Congress, which they said would be a matter of only a few months. That report has not yet been submitted, but a number of proposed sections, prepared by the FPC staff, have been released and the findings on most of the matters treated in the bill are now known.

Army Puts Part of Canol Pipe Line Back in Use

WASHINGTON.—The Army's wartime Canol project, which just won't stay dead, broke back into the news last week with announcement by the Army Department that it was about to put the entire pipe line between Skagway and Fairbanks via Whitehorse, Canada, back into service.

Specifically, the Army said the center link between Whitehorse and Big Delta, Alaska, will be reactivated, and the line will be used for the movement of diesel oil for military consumption. No gasoline or other explosive-type fuel will be handled because of fire hazards occasioned by proxmity of the line to railroad tracks at some places.

Heretofore, oil for military consumption at Fairbanks has moved by rail from the ports at Whittier or Anchorage. Utilization of the pipe line will solve storage problems in the Fairbanks area and release facilities at the two ports for other types of product.

The department said tests of the line have shown it to be in good condition and such minor rehabilitation measures as will be required can be taken at an estimated cost of less than $5,000.

PERSONALS

New Deep Rock Head Is Financial Expert

WITH a background of 15 years' experience in different branches of operations of Shell Oil Co., Inc., and recently as assistant treasurer of that company, William H. Garbade has been elected president of Deep Rock Oil Corp. The announcement was made by C. K. Baxter, who assumed the duties of president replacing the late Henry N. Greis in July 1947. Baxter will continue as chairman of the board and Garbade will succeed Jason L. Honigman as director of the corporation.

Garbade holds a master's degree from New York University's school of commerce, accounts and finance. In addition to his financial and accounting activities with Shell, Garbade also extended his work to marketing, transportation and supplies, organization work, and economics. He participated in the reorganization of the distribution system of Shell Group companies in Western Europe in 1946, following the war's end.

As president of Deep Rock, Garbade will head a company whose oil and gas properties in Arkansas, Illinois, Kansas, Oklahoma and Texas produce more than 8,000 bbl. of crude oil daily. The company owns and operates a 12,000 bbl. daily capacity refinery at Cushing, Okla., which includes a 5,000-bbl. daily capacity thermal cracking plant as well as equipment for producing lubricating oils and wax.

H. N. Lyne, Engineering Service Co., Corpus Christi, has been elected chairman of the Southwest Texas section of the American Institute of Mining and Metallurgical Engineers. Other new officers are **Thomas S. West,** Buchanan Oil Co., San Antonio, vice chairman; **Raoul J. Bethancourt,** Sun Oil Co., Corpus Christi, secretary; and the following directors: **Dr. Frank Dotterweich,** A. & I. College, Kingsville; **E. H. Lancaster,** Humble Oil & Refining Co.; **Charles H. Snelson,** Seaboard Oil Co. of Delaware; and **Paul R. Turnbull,** Humble Oil & Refining Co., all of Corpus Christi. Turnbull is the retiring chairman.

T. H. Custer, former tool pusher for George L. Livermore, Inc., resigned recently to join Loffland Brothers Co.

Paul Dobyns, Stamford, Tex., has been appointed petroleum engineer, safety division, U. S. Bureau of Mines, with headquarters in Dallas.

James J. Cosgrove, who has been general counsel for Continental Oil Co. since 1929 and a vice president since 1944, was elected chairman of the board of directors of that company at a meeting in New York last week. Cosgrove is a graduate of Cornell University and University of Pittsburgh law school. In 1922 he joined the legal staff of The Texas Co. continuing in that position until he entered Continental service.

J. B. Storey, former district geologist for United Gas Co. at Jackson, Miss., has been made assistant district manager of the company with headquarters in New Orleans.

Charles E. Colvin, manager of the production planning section of Ethyl Corp.'s Baton Rouge, La., manufacturing plant, has been named manager of purchases in the newly created purchasing section of the company's plant.

William R. Boyd, III, marketing counselor for Cities Service Co., has been awarded an oak leaf cluster to the Bronze Star Medal for meritorious service with the Eighth Air Force during World War II.

C. J. Harvey, district geophysicist for Atlantic Refining Co. at Jackson, Miss., has been made district geologist for north Oklahoma and Kansas, with offices at Tulsa. He succeeds **Bill Sloniger,** recently resigned to become a consultant.

R. G. McIntyre, president of Standard Oil Co. of Texas, Houston, has been elected chairman of the board of directors of Col-Tex Refining Co., Oklahoma City, to succeed **F. S. Bryant,** San Francisco, who recently resigned. Other officers named include: **M. P. Paret, Jr.,** of El Paso, Tex., member of the board and executive committee; **H. L. Smith,** of Houston, director; and **L. W. Clark,** of Houston, assistant secretary.

Dr. Paul H. Giddens, Allegheny College professor and an authority on the history of the petroleum industry, has been granted a 2-year leave of absence from teaching duties to write a complete history of Standard Oil Co. (Ind.) Work on the project is to begin February 1.

C. E. Meyers, vice president and director of Standard-Vacuum Oil Co., has left on a 3 to 4-months business trip which will take him to China, Japan and India.

Gail H. Stoddard, superintendent of exploration for Standard Oil Co. of Texas for the Gulf Coast division at Houston, has been named the company's division superintendent of exploration in the Permian basin at Midland, Tex. He succeeds **Edmond Borys,** who has been transferred to a new division being established by the company at Albuquerque, N. M.

C. V. BARRY

C. Victor Barry, formerly United States petroleum attache in London and an executive of several of Socony-Vacuum Oil Co., Inc.'s European subsidiaries, has succeeded **R. W. Sellers** as European representative for this company. Sellers, who was European representative from 1936 to 1947, has retired.

Dr. W. E. Hanford, research scientist for M. W. Kellogg Co., has been appointed to the newly created post of director of petroleum and chemical research. He will have charge of all the company's laboratory work both at Jersey City and as expanded by university fellowships.

Dwight F. Benton, formerly manager of the lubricating and sales technical-service departments of Standard Oil Co. (Ind), has resigned to become president of Root Petroleum Co. He is succeeded by **G. T. Dougherty,** formerly manager of bulk sales in the lubricating department of the

PERSONALS

company. **W. Wayne Albright,** assistant to manager of the lubricating department, has been appointed assistant manager of the lubricating and sales technical-service departments.

Dr. J. Bennett Hill, former manager of the development division of the manufacturing department for

DR. J. B. HILL

DR. J. PEARSON

Sun Oil Co., has been named director of a new chemical and engineering division in which the chemical research and development and automotive engineering research for the entire company will be centralized. **Dr. John M. Pearson,** former director of physical research and development of the production department, will direct a newly organized physical division. **Dr. John R. Bates** is the director in charge of research for Sun.

Robert O. Spurdle, head of the patent division in the manufacturing department, will continue to head that division which is being transferred into the research and development department. In the chemical and engineering division several other appointments were made: **Stewart S. Kurtz, Jr.,** manager of the chemical research laboratory; **W. Herman Barcus,** manager of the development laboratory; and **A. Ludlow Clayden,** manager of the automotive laboratory; **Ford L. Johnson** has been named manager of the laboratory in the physical division.

J. Harold Perrine, formerly of the development division of the manufacturing department, has been appointed administrative assistant in Sun's new research and development department.

Jack L. Lawton, petroleum engineer for Standard Oil Co. of Texas for 10 years, has been named division petroleum engineer in Midland, Tex. He succeeds **David S. Googins,** who has resigned to become a consulting engineer.

C. S. Mitchell, in charge of the real-estate department of Cities Service Oil Co.'s marketing division at Chicago, has been appointed manager of the company's new crude oil purchasing and sales department. Mitchell has been with the company since 1930, and has served as engineer and as assistant superintendent of production operations in the Texas Panhandle.

Clyde W. Turner, formerly on the district geological staff of Gulf Oil Corp. in Midland, Tex., has joined Republic Natural Gas Co. as district geologist at the new office to be established by that company in Midland. Turner was recently elected secretary of the West Texas Geological Society for 1948.

W. L. Crothers of the division petroleum engineering staff of Humble Oil & Refining Co., in Midland, has been assigned to a year of duty at the company's headquarters in Houston, where he will do special research work on limestone reservoirs.

DEATHS

Rufus L. Slaughter, formerly head of the land department of Peters Petroleum Corp., Tulsa, in 1929, and more recently engaged as an attorney, died recently in San Francisco.

John C. Millar, former director and treasurer of British American Oil Co., Ltd., and at one time vice president of British American Oil Producing Co., Tulsa, died recently in Buffalo, N. Y. He joined British American Oil Co., Ltd., in 1919 as office manager and became treasurer in 1927.

Harold D. Britain, 39, president of Britain-Corbitt Drilling Co., died January 23 in Oklahoma City.

John M. Meredith, 72, retired independent oil operator of Texas, died January 19 near Smithfield, Tex.

Bernard A. McKerren, 56, secretary and assistant treasurer of Texas Pipe Line Co., and secretary-treasurer of Texas-Empire Pipe Line Co. and Kaw Pipe Line Co., died January 21 in Tulsa.

Cooper Blount, 45, drilling foreman who has been active in West Texas for the past 20 years, died January 20 in Olney, Tex.

Joseph F. Fleig, 67, recently retired from the mechanical department staff of the Bayway Refinery, Linden, N. J., died January 20 in Linden.

George M. Schiek, 79, early day independent oil producer and later with Sinclair Prairie Oil Co., died January 26 in Tulsa. He was retired in 1943.

Officers present at the January 20 election meeting held by the Gulf Coast Section, A.I.M.E. are shown here. Front row (left to right): A. B. Stevens, professor of Petroleum Engineering, Texas A. & M. College, director; Frank Briggs, chief engineer, Houston Oil Field Material Co., director; A. W. Waddill, vice president in charge of sales, Houston Oil Field Material Co., director; Harold Decker, vice president and general manager, Pan American companies, past chairman; George L. Nye, vice president, City National Bank, newly elected chairman; and J. M. Jennings, Bishop Oil Co., director. Back row: E. B. Miller, Jr., chief production engineer, Mid-Continent division, Tide Water Associated Oil Co., program chairman; Mercer Parks, supervising engineer, Humble Oil & Refining Co., director; H. M. Krause, material manager, Humble Oil & Refining Co., director; Ralph W. Wilson, engineer, Baroid Sales division, National Lead Co., director; and Owen Thornton, production engineer, The TexasCo. Newly elected officers not shown are: A. S. Parks, petroleum engineer and geologist, vice chairman; Dr. George Fancher, professor of petroleum engineering, University of Texas, vice chairman; and Fred Nelson, Texas Gulf Sulphur Co., secretary-treasurer

REVIEW and FORECAST

DRILLING—33,098 wells and 114,013,000 ft. completed in 1947. 36,612 wells and 131,744,000 ft. forecast for 1948. Totals include 5,461 wildcats completed in 1947 and 6,296 are forecast for 1948.

PRODUCTION—1,896,679,000-bbl. output in 1947 sets new U. S. record; Texas 848,290,000 bbl. also sets new record. Demand forecasts indicate that 1,976,000,000 bbl. will be required in 1948.

RESERVES—At new all-time high for both gas and liquid hydrocarbons. Crude plus condensate increased 2.4 billion barrels. Gas proven reserves increased 13.7 trillion to 174.3 trillion cubic feet.

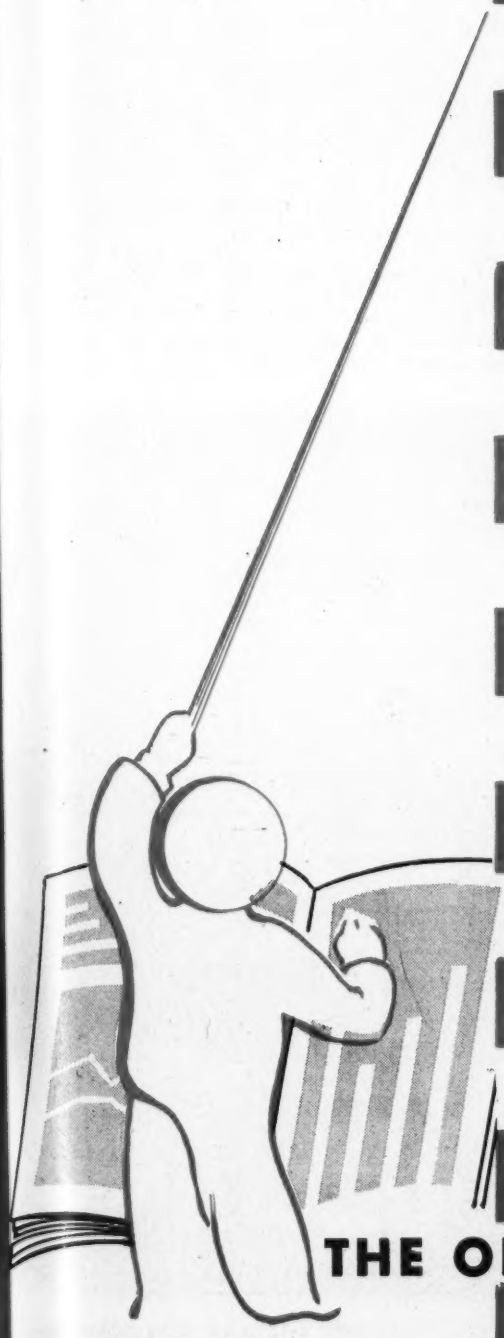
DEMAND—Increase of 9.8 per cent makes 1947 record breaker with total of 5,844,000 bbl. daily. Forecast for 1948 indicates 6,183,000 bbl. daily will be used, an increase of 5.3 per cent over 1947.

LIGHT HYDROCARBONS — Natural-gasoline and cycling-plant output up 13.2 per cent, but consumers wanted still more. 1948 forecast supply up 12.0 per cent. L.P.G. 280 per cent over 1941.

REFINING—1947 crude runs of 5,053,870 bbl. daily set new high. Increase to 5,346,420 bbl. daily forecast for 1948; hence the largest peacetime construction program in history is presently under way.

PIPE LINES—Over 8,000 miles laid in 1947. Announced future programs for 1948-51 period total over 23,000 miles, of which over 17,000 miles will be domestic, and over 6,000 miles will be foreign.

NATURAL GAS—Marketed production up 10 per cent in 1947. Field price trend upward. About 17,000 miles of large-diameter transmission lines planned for next 5 years to meet requirements.



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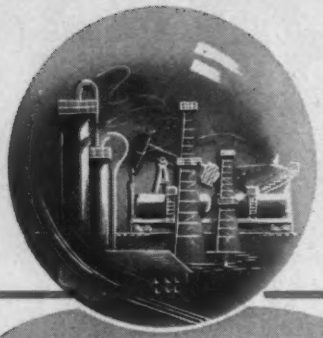


REVIEW - FORECAST

DRILLING FORECAST

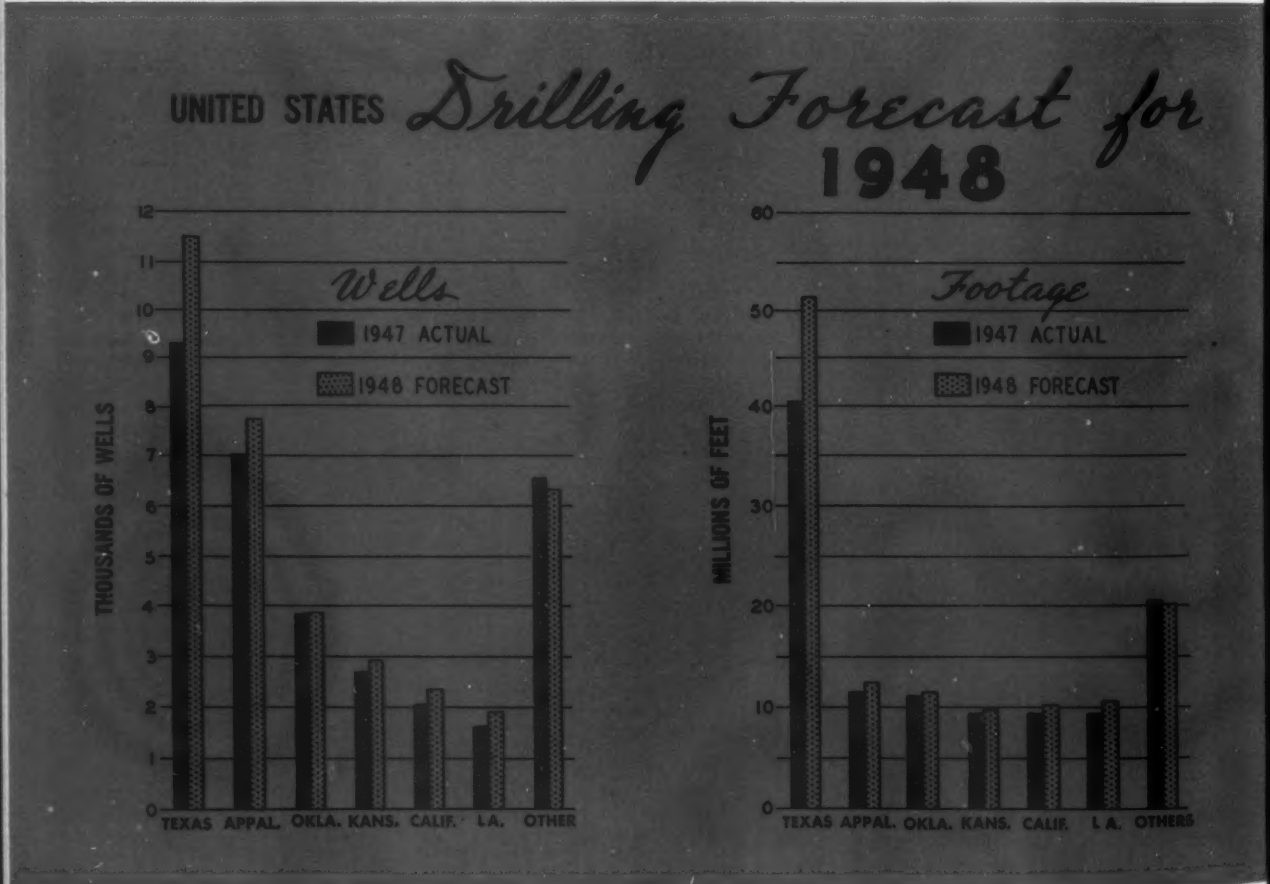
Industry Meets Shortage Threat With Bigger Drilling Program

by Charles J. Deegan

A 1948 drilling program that will smash all previous records by a substantial margin is a basic part of the industry's answer to threats of an oil shortage. This is revealed in the replies from operators to The Oil and Gas Journal's survey of the 1948 plans for drilling. The industry is worried about getting sufficient materials, and the replies reflect this concern. However, most operators seem to be proceeding on the basis that recognition of the basic nature of the industry and its essential service to the people of this country will be reflected in increased supplies of steel and other materials this year.

The operators' 1948 program calls for a total of 36,612 wells with a total footage of 131,744,000 ft. These figures represent an increase of 10.6 per cent in number of wells and 15.5 per cent in total footage drilled over the very high 1947 totals. The greater increase in footage scheduled as compared to number of wells indicates the trend toward deeper drilling. The average depth per well forecast for 1948 is 3,598 ft., which compares with actual averages of 3,445 ft. in 1947, 3,321 ft. in 1946, and the prewar year 3,012-ft. average for 1940.

The stress on exploratory drilling so noticeable in the postwar years will be stepped up still more in 1948. The operators are scheduling a 15 per cent gain in wildcat wells for this year over last year's all-time high record. This contrasts with a forecasted increase of 9.4 per cent in development wells. Present plans call for 6,296 wildcat wells this year, an increase of 835 over the 1947 record.



A total of 30,316 development wells are included in the 1948 drilling plans, an increase of 2,679 wells and 9.4 per cent over last year. At present prices for crude, more of the fields developed on wide-spacing programs during the war may be reworked to increase the ultimate recovery and rate of recovery by closer spacing. A slight increase is noted in plans for service wells, about 2,350 being programed as compared to 2,280 last year.

Texas again heads the list of producing states in total wells, footage, and increases, with 11,503 wells and 52,603,000 ft. forecast for the year. This represents 31 per cent of the total wells for the country and 40 per cent of the projected footage. Compared with the 1947 drilling results, the Texas program for 1948 calls for gains of 417 wildcats and 1,785 development wells. The 11,574,000 footage increase is 65 per cent of the total gain forecast for all producing states combined.

West Texas operators plan to drill a total of 2,988 wells in 1948, divided into 284 wildcats and 2,704 development wells. To accomplish this, about 30 per cent of the Texas development drilling will have to take place in the West Texas area.

Most of the Texas exploratory drilling is scheduled for the Gulf Coast, North Central, and Southwest areas, with the major increase programed for the Gulf Coast, 231 more wildcats than in 1947.

Oklahoma is included in the 1948 plans for a total of 3,867 wells and 12,868,000 ft. While these totals do not represent large increases over the 1947 performance, they indicate a continuing program of very active drilling that will keep the state in second place for total completions.

Kansas operators plan to drill 2,413 field wells and 526 wildcats for a total of 9,457,000 ft. This will require 245 more completions than in 1947.

The California program calls for 258 more field wells than in 1947 but very little change in the number of exploratory wells. Total completions should be above 2,300 with over 10,000,000 ft. drilled.

In Louisiana, substantial increases are programed for both wildcats and field wells, 98 and 249 respectively. About 28 per cent of the 753 total completions, planned for South Louisiana, are to be wildcats compared with the 14 per cent ratio of wildcats out of the 1,220 total completions scheduled for the northern part of the state. The operators in the northern areas plan to drill a little over 4,000,000 ft. of hole which is substantially less than the near 6,000,000 ft. programed for the southern district.

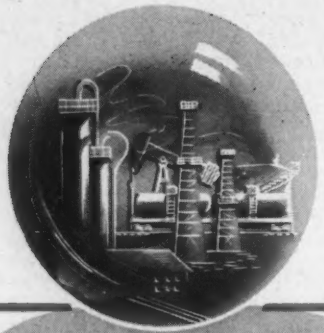
The Rocky Mountain forecast includes 388 wells for Wyoming, 190 for Colorado, and 347 for Montana, with the increases for the area about equally divided between wildcats and development wells.

In the north and central producing areas, fewer wells are planned for both Illinois and Indiana than in 1947. The increase in Michigan wildcats should more than offset the decline in field wells to give the state a small net increase for the year. The program for Kentucky shows fewer total completions than in 1947 because of a decrease in the number of development wells.

The continuing importance of the secondary-recovery program in the Appalachian area is indicated by the programed increases in total completions, including service wells, for New York, Pennsylvania, and West Virginia.

DRILLING PROGRAM FORECAST FOR 1948

	1948 program forecast				Change from 1947 actual			
	Field wells	Wildcat wells	Total wells	Total footage	Field wells	Wildcat wells	Total wells	Total footage
Alabama	4	17	21	138,000	— 2	— 6	— 8	+ 18,000
Arkansas	159	45	204	938,000	— 105	— 20	— 125	— 471,000
California	1,952	368	2,320	10,208,000	+ 258	+ 9	+ 267	+ 1,444,000
Colorado	122	68	190	1,082,000	— 36	+ 17	— 19	— 69,000
Florida	3	30	33	207,000	0	+ 3	+ 3	+ 22,000
Illinois	1,350	528	1,878	4,920,000	— 162	+ 7	— 155	— 331,000
Indiana	518	158	676	1,197,000	— 7	+ 2	— 5	— 9,000
Kansas	2,413	526	2,939	9,457,000	+ 131	+114	+ 245	+ 767,000
Kentucky	478	102	580	1,068,000	— 89	+ 9	— 80	— 126,000
Louisiana	1,597	376	1,973	11,126,000	+ 249	+ 98	+ 347	+ 2,417,000
Northern	1,052	168	1,220	4,236,000	+ 213	+ 32	+ 245	+ 1,324,000
Southern	545	208	753	6,890,000	+ 36	+ 66	+ 102	+ 1,093,000
Michigan	605	318	923	2,049,000	— 29	+ 43	+ 14	+ 114,000
Mississippi	292	113	405	3,372,000	— 105	+ 19	— 86	— 760,000
Montana	291	56	347	745,000	+ 24	+ 14	+ 38	+ 115,000
New Mexico	565	57	622	2,768,000	+ 50	+ 10	+ 60	+ 256,000
New York	1,880	0	1,880	2,692,000	+ 349	0	+ 349	+ 489,000
Ohio	1,361	44	1,405	4,114,000	+ 35	— 7	+ 28	+ 201,000
Oklahoma	2,991	876	3,867	12,868,000	— 12	+ 33	+ 21	+ 718,000
Pennsylvania	3,428	28	3,456	5,571,000	+ 211	+ 7	+ 218	+ 460,000
Texas	9,191	2,312	11,503	52,603,000	+1,785	+417	+2,202	+11,574,000
North Central	2,355	610	2,965	9,061,000	+ 46	+ 4	+ 50	+ 516,000
West	2,704	284	2,988	14,157,000	+ 630	+ 71	+ 701	+ 3,348,000
Panhandle	767	20	787	2,581,000	+ 292	+ 5	+ 297	+ 989,000
Eastern	708	182	890	4,487,000	+ 248	+ 45	+ 293	+ 1,417,000
Gulf Coast	1,512	648	2,160	13,674,000	+ 430	+231	+ 661	+ 4,115,000
Southwestern	1,145	568	1,713	8,643,000	+ 139	+ 61	+ 200	+ 1,189,000
Utah	1	11	12	92,000	+ 1	+ 7	+ 8	+ 65,000
West Virginia	828	129	957	2,625,000	+ 50	+ 25	+ 75	+ 238,000
Wyoming	283	105	388	1,824,000	+ 83	+ 38	+ 121	+ 621,000
Miscellaneous	4	29	33	91,000	0	— 4	— 4	— 9,000
Total United States	30,316	6,296	36,612	131,755,000	+2,679	+835	+3,514	+17,744,000



REVIEW - FORECAST

COMPLETIONS

33,098 Well Completions in 1947 Only 874 Short of All-Time High

by John C. Casper

A NEAR-RECORD number of wells, totaling 33,098, was completed in the United States during 1947 despite acute shortages of steel and its products. The past year's drilling efforts were exceeded in number only by the 1920, all-time record of 33,972 completed wells. Development wells accounted for 27,637 of the completions and included 17,127 oil producers, 3,057 gas wells, 5,173 dry holes, and 2,280 service and storage wells. The remaining 5,461 wells completed were wildcats and included 864 oil wells, 248 gas wells, and 4,349 dry holes.

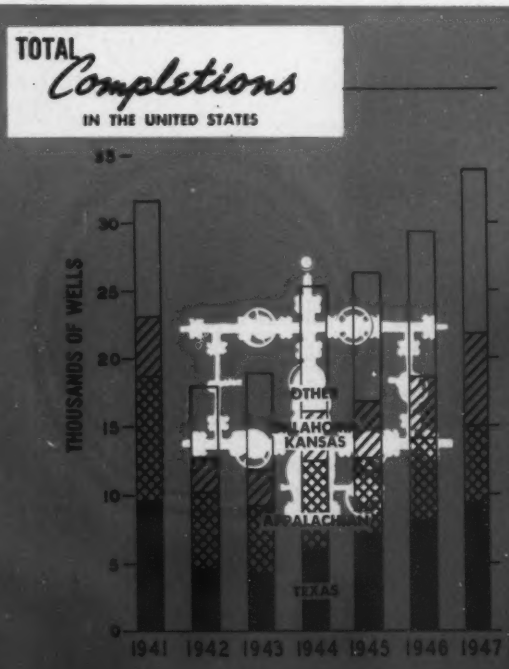
The great increase in demand for crude was incentive for an accelerated search for production and development of known areas, and on the basis of this, operators planned a more extensive drilling program than ever before, with emphasis on deeper exploratory tests.

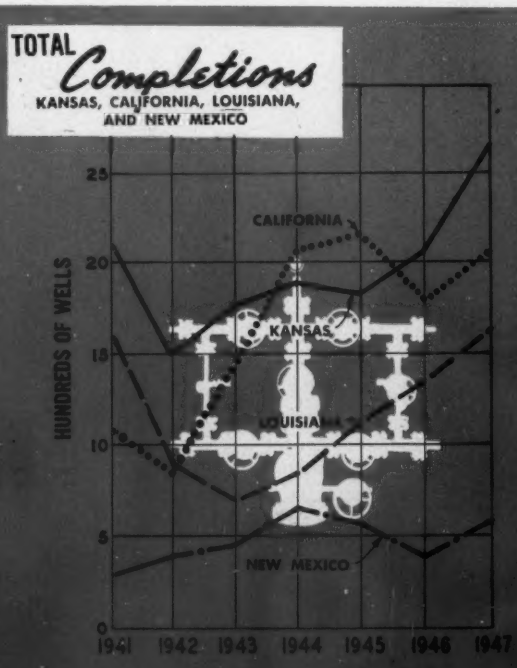
The operators started the year with a reasonably stiff drilling program scheduled, one calling for 30,041 wells, including 5,035 wildcats. As the unexpected demands for products began to pile up, and it was seen that the peak consuming season of the coming winter would mean trouble, this program

DRILLING METHODS—1947

State—	Total	Rotary	Cable
Alabama	29	29	0
Arkansas	329	328	1
California	2,053	2,053	0
Colorado	209	204	5
Florida	30	30	0
Georgia	5	5	0
Illinois	2,033	1,723	310
Indiana	681	443	238
Kansas	2,694	2,376	318
Kentucky	660	371	289
Louisiana	1,626	1,623	3
North	975	972	3
South	651	651	0
Michigan	909	547	362
Mississippi	491	491	0
Montana	309	134	175
New Mexico	562	508	54
New York	1,531	0	1,531
Ohio	1,377	3	1,374
Oklahoma	3,846	3,454	392
Pennsylvania	3,238	0	3,238
Texas	9,301	8,630	671
East	597	592	5
North Central	2,915	2,576	339
Panhandle	490	*449	41
West	2,287	*1,996	291
Southwest	1,513	1,513	0
Gulf Coast	1,499	1,499	0
Utah	4	4	0
West Virginia	882	0	882
Wyoming	267	214	53
Miscellaneous	32	30	2
Total	33,098	23,200	9,898

*Includes wells drilled by rotary and finished by cable tools.





DEVELOPMENT COMPLETIONS BY STATES

State—	Comp.	Oil	Gas	Dry
Alabama	6	5	0	1
Arizona	0	0	0	0
Arkansas	264	180	10	74
California	1,694	1,572	33	89
Colorado	158	149	4	5
Florida	3	2	0	1
Georgia	0	0	0	0
Illinois	1,512	946	7	559
Indiana	525	288	28	209
Kansas	2,282	1,251	437	594
Kentucky	567	277	107	183
Louisiana	1,348	973	96	279
Northern	839	587	87	165
Southern	509	386	9	114
Maryland	0	0	0	0
Michigan	634	295	49	290
Mississippi	397	317	28	52
Montana	267	145	85	37
Neb., Mo., Iowa	0	0	0	0
New Mexico	515	416	60	39
New York	1,531	780	0	751
North Carolina	0	0	0	0
Ohio	1,326	307	547	472
Oklahoma	3,003	1,862	279	862
Oregon	0	0	0	0
Pennsylvania	3,217	1,636	258	1,323
South Dakota	2	0	1	1
Tennessee	2	0	0	2
Texas	7,406	5,459	457	1,490
North Central	1,708	1,111	15	582
West Central	601	320	27	254
West	2,074	1,928	17	129
Panhandle	475	261	180	34
Eastern	460	301	73	86
Gulf Coast	1,082	809	75	198
Southwest	1,006	729	70	207
Utah	0	0	0	0
Washington	0	0	0	0
West Virginia	778	108	558	112
Wyoming	200	159	13	28
Total United States	27,637	17,127	3,057	*7,453

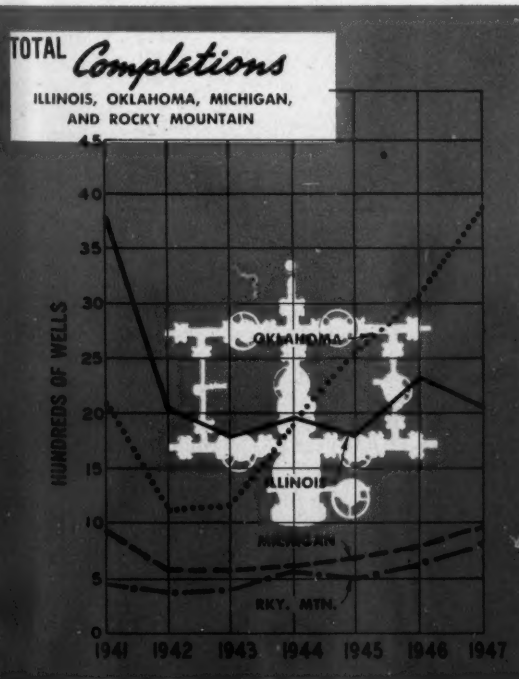
*Includes 2,280 service wells.

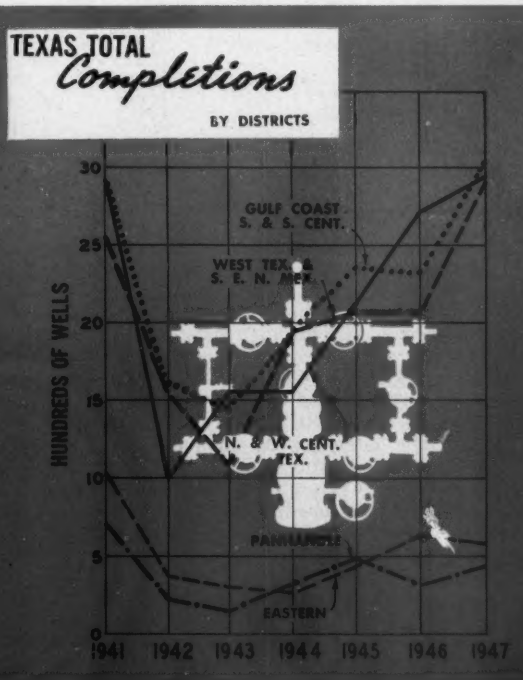
WILDCAT COMPLETIONS BY STATES

State— *	Comp.	Oil	Gas	Dry
Alabama	23	0	0	23
Arizona	0	0	0	0
Arkansas	65	2	0	63
California	359	67	12	280
Colorado	51	3	3	45
Florida	27	0	0	27
Georgia	5	0	0	5
Illinois	521	108	3	410
Indiana	156	24	7	125
Kansas	412	52	15	345
Kentucky	93	12	3	78
Louisiana	278	63	9	206
Northern	136	6	3	127
Southern	142	57	6	79
Maryland	1	0	0	1
Michigan	275	17	6	252
Mississippi	94	2	1	91
Montana	42	7	8	27
Neb., Mo., Iowa	7	0	0	7
New Mexico	47	7	0	40
New York	0	0	0	0
North Carolina	1	0	0	1
Ohio	51	0	8	43
Oklahoma	843	127	23	693
Oregon	1	0	0	1
Pennsylvania	21	0	12	9
South Dakota	1	0	0	1
Tennessee	15	0	0	15
Texas	1,895	355	80	1,460
North Central	330	48	1	281
West Central	276	43	11	222
West	213	47	4	162
Panhandle	15	1	2	12
Eastern	137	12	4	121
Gulf Coast	417	100	36	281
Southwest	507	104	22	381
Utah	4	0	0	4
Washington	2	0	0	2
West Virginia	104	5	52	47
Wyoming	67	13	6	48
Total United States	5,461	864	248	4,349
Total 1946	4,518	635	127	3,756

was revised upward. By midyear the program was increased to call for 33,583 wells, including 5,459 wildcats.

Since material shortages were already in evidence, this program seemed very ambitious. In fact, some people were predicting that the total completions for 1947 would fall below 1946, due to inability to get materials. Somehow, somewhere, operators and contractors managed to scramble together enough pipe to drill 33,098 wells, only 485 fewer than their





Total United States Completions by States

State—	Total comp.	Oil	Gas	Dry	Service	Average footage	Total comp. 1946
Alabama	29	5	0	24	0	4,146	16
Arizona	0	0	0	0	0	0	2
Arkansas	329	182	10	137	0	4,282	183
California	2,053	1,639	45	369	0	4,269	1,790
Colorado	209	152	7	50	0	5,507	167
Florida	30	2	0	28	0	6,182	26
Georgia	5	0	0	5	0	3,754	2
Illinois	2,033	1,054	10	969	0	2,583	2,343
Indiana	681	312	35	334	0	1,771	582
Kansas	2,694	1,303	452	912	27	3,226	2,027
Kentucky	660	289	110	261	0	1,810	714
Louisiana	1,626	1,036	105	485	0	5,357	1,384
Northern	575	593	90	292	0	2,988	800
Southern	651	443	15	193	0	8,905	584
Maryland	1	0	0	1	0	5,259	1
Michigan	909	312	55	402	140	2,129	788
Mississippi	491	319	29	143	0	8,416	260
Montana	309	152	93	64	0	2,038	313
Neb., Mo., Iowa	7	0	0	7	0	1,689	18
New Mexico	562	423	60	79	0	4,470	411
New York	1,531	780	0	0	751	1,439	1,544
North Carolina	1	0	0	1	0	6,370	1
Ohio	1,377	307	555	459	56	2,842	1,275
Oklahoma	3,846	1,989	302	1,532	23	3,159	3,050
Oregon	1	0	0	1	0	8,500	2
Pennsylvania	3,238	1,636	270	69	1,263	1,578	3,584
South Dakota	3	0	1	2	0	2,645	9
Tennessee	17	0	0	17	0	1,550	5
Texas	9,301	5,814	537	2,932	18	4,411	7,804
North Central	2,038	1,159	16	849	14	2,874	2,052
West Central	877	363	38	473	3	3,064	653
West	2,287	1,975	21	291	0	4,726	1,780
Panhandle	490	262	182	46	0	3,250	310
Eastern	557	313	77	206	1	5,142	687
Gulf Coast	1,499	909	111	479	0	6,377	1,719
Southwest	1,513	833	92	588	0	4,926	603
Utah	4	0	0	4	0	6,713	4
Washington	2	0	0	2	0	7,660	1
West Virginia	882	113	610	157	2	2,707	755
Wyoming	267	172	19	76	0	4,506	168
Total 1947	33,098	17,991	3,305	9,522	2,280	3,445	23,223
Total 1946	29,229	15,851	3,090	8,051	2,237	3,321	.....
Total 1945	26,879	14,297	2,899	7,471	2,212	3,469	.....
Total 1944	25,262	13,029	3,067	*9,166	.....	3,234	.....
Total 1943	19,477	9,717	1,897	*7,863	.....	3,250	.....
Total 1942	18,150	8,501	2,089	*7,560	.....	3,158	.....

*Includes service wells.

greatly expanded midyear program, and 3,057 more than they had originally planned at the beginning of the year.

The importance attached to wildcatting for new reserves is indicated by the fact that the final record showed 436 more such tests completed than planned at the beginning of the year, and even 2 more than the revised and expanded midyear program.

One method by which this record was achieved was to sacrifice deep-pay development wells that had been scheduled, substituting shallower wells that took less pipe. Consequently the footage drilled, while exceeding that scheduled at the beginning of the year, fell short of what the operators set up as a goal in the revised midyear program.

Many of the operators, even among the largest, sometimes refused to begin a deep well until they had all the pipe requirements, either on the ground at location, in their own warehouse, or on a definitely scheduled shipment from the mills.

As usual, Texas led the nation in operations, with 9,310 completions, as against 7,804 in 1946. Of this number, 7,406 were development wells and 1,895 were wildcats. West Texas set the pace within the state with 2,287 completions. The North Central area accounted for 2,038 of the total completions; while Southwest Texas placed third with 1,513 completions.

Oklahoma superseded Pennsylvania in second place over the country, having 3,003 development wells and 843 wildcats for a total of 3,846, an increase of 796 wells over last year's 3,050 completions. Pennsylvania reported a decrease of 296 completions to place third with 3,238. Five additional states reflected an average of four completions or better per day for the year; Kansas showed an increase of 668 completions to place fourth with 2,694; California was fifth with an increase of 263 wells, to a total of 2,053; Illinois dropped from fourth to sixth with a decrease of 310 wells to 3,033; Louisiana was seventh with an increase of 242 wells to 1,626; and New York placed eighth although reporting a decrease of 13 completions, for a total of 1,531.

Total Well Completions in United States—By Years

	1940	1941	1942	1943	1944	1945	1946	1947
Arkansas	179	198	184	243	214	185	183	329
California	1,030	1,111	828	1,447	2,034	2,150	1,790	2,053
Colorado	19	33	25	31	37	60	167	209
Illinois	3,814	3,838	2,029	1,751	1,949	1,749	2,343	2,033
Indiana	504	513	387	247	303	305	582	681
Kansas	1,817	2,112	1,519	1,735	1,837	1,796	2,027	2,694
Kentucky	583	706	260	656	993	737	714	660
Louisiana	1,657	1,664	879	673	803	1,108	1,384	1,626
Northern	668	792	445	311	329	493	800	975
Southern	989	872	434	360	474	615	584	651
Michigan	1,104	949	663	628	655	770	788	909
Mississippi	210	282	71	115	156	362	260	491
Montana	234	283	218	240	387	312	313	309
New Mexico	611	277	346	251	414	424	411	562
N. Y., Pa., W. Va.	5,621	6,290	3,572	4,659	6,543	5,871	5,883	5,651
Ohio	1,227	1,653	1,145	879	1,023	1,014	1,275	1,377
Oklahoma	1,834	2,110	1,159	1,184	1,890	2,521	3,050	3,846
Texas	9,094	9,827	4,688	4,421	5,729	7,195	7,804	9,301
North Central	2,755	2,835	1,002	1,551	1,563	2,247	2,705	2,915
West	1,855	2,297	1,255	891	1,582	1,740	1,780	2,237
Panhandle	560	718	328	200	312	531	310	490
Eastern	621	1,058	403	310	308	401	687	597
Gulf Coast	1,232	1,078	674	513	1,401	1,721	1,719	1,499
Southwest	2,071	1,841	1,026	956	563	555	603	1,513
Wyoming	179	161	119	133	205	227	168	267
Miscellaneous	123	133	58	84	89	93	86	100
Total United States	30,040	32,140	18,150	*19,477	*25,262	*26,879	*29,228	*33,098
*Service wells included	.....	.....	.....	1,593	2,156	2,212	2,237	2,280

Total Footage Drilled in United States—By Years

(Thousands of feet)

	1940	1941	1942	1943	1944	1945	1946	1947
Arkansas	1,002	911	1,033	1,095	1,190	828	723	1,409
California	6,130	6,511	3,359	4,793	7,527	8,671	7,509	8,764
Colorado	87	101	123	83	207	352	1,063	1,151
Illinois	9,424	9,462	5,027	4,668	4,958	4,565	5,925	5,251
Indiana	901	981	736	428	581	500	1,071	1,206
Kansas	5,714	6,353	4,795	5,808	6,194	5,877	6,556	8,690
Kentucky	602	1,189	417	1,182	1,863	1,275	1,175	1,194
Louisiana	8,583	9,125	5,679	4,337	5,723	7,774	8,464	8,709
Northern	1,757	2,361	1,827	1,199	1,408	2,117	3,175	2,912
Southern	6,826	6,764	3,852	3,138	4,315	5,657	5,289	5,797
Michigan	2,165	1,998	1,673	1,548	1,620	1,963	1,749	1,935
Mississippi	1,019	1,406	377	635	776	2,403	1,971	4,131
Montana	611	612	728	533	946	754	661	630
New Mexico	200	754	1,148	770	1,322	1,508	1,624	2,512
N. Y., Pa., W. Va.	12,666	12,212	6,923	9,071	10,038	10,225	9,985	9,702
Ohio	2,110	3,354	2,875	2,493	2,730	2,689	3,402	3,913
Oklahoma	4,904	5,531	3,934	3,845	7,172	10,048	9,771	12,151
Texas	34,534	37,268	21,064	19,030	26,621	32,495	34,352	41,029
North Central	6,661	6,460	3,088	4,097	4,395	5,864	7,065	8,544
West	7,554	9,725	5,434	4,195	7,572	8,497	8,815	10,809
Panhandle	1,678	2,143	1,013	546	984	1,686	943	1,593
Eastern	2,433	4,435	2,046	1,769	1,867	2,504	3,792	3,070
Gulf Coast	7,505	6,980	4,410	3,618	9,491	11,690	11,599	9,559
Southwest	8,703	7,525	5,073	4,805	2,312	2,254	2,138	7,454
Wyoming	583	496	793	557	907	967	716	1,203
Miscellaneous	232	268	105	302	371	348	326	433
Total United States	91,467	98,532	60,789	61,278	80,746	93,240	97,048	114,013

REVIEW - FORECAST

RECORD BREAKERS

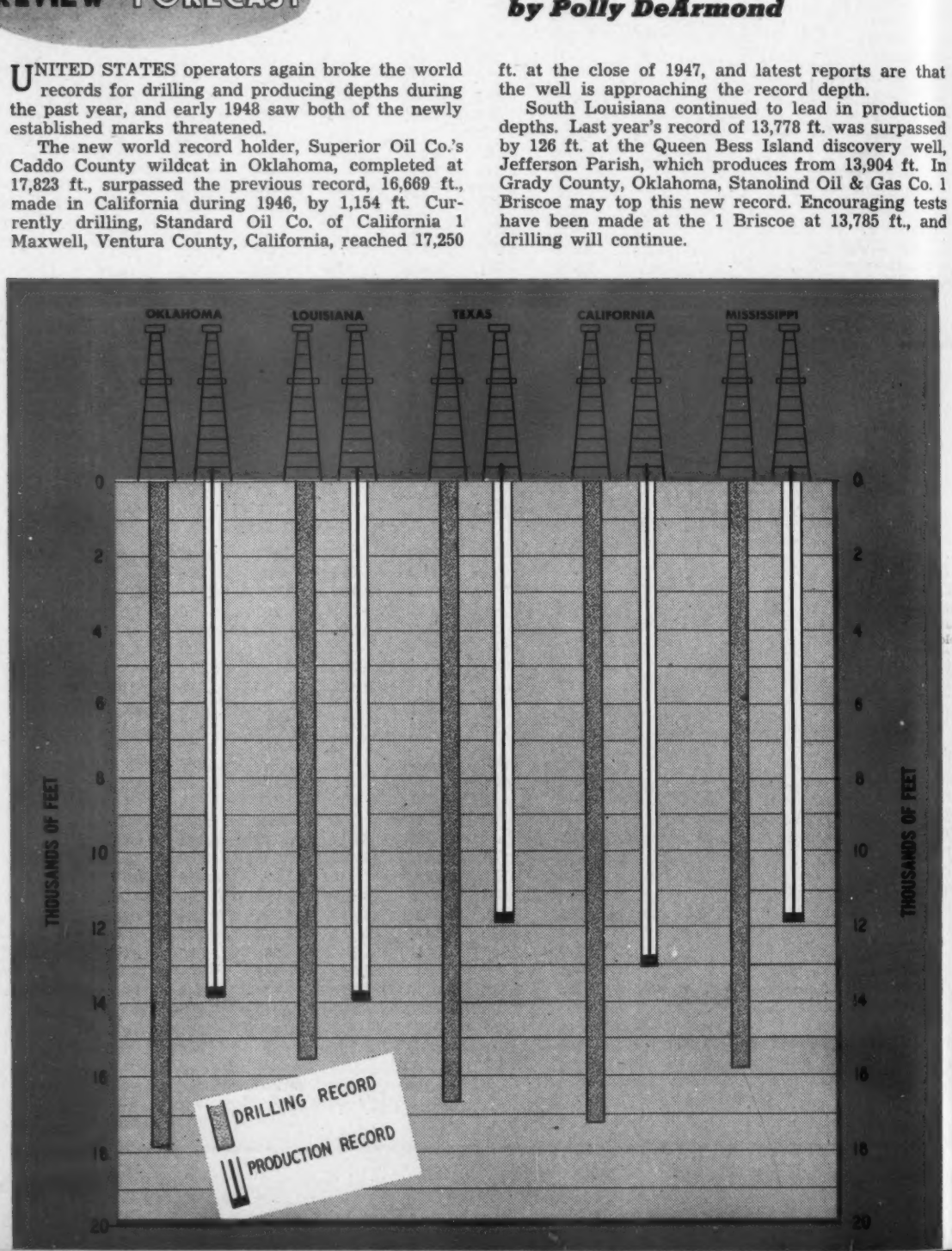
New Records Set for Both Drilling and Producing Depths

by Polly DeArmond

UNITED STATES operators again broke the world records for drilling and producing depths during the past year, and early 1948 saw both of the newly established marks threatened.

The new world record holder, Superior Oil Co.'s Caddo County wildcat in Oklahoma, completed at 17,823 ft., surpassed the previous record, 16,669 ft., made in California during 1946, by 1,154 ft. Currently drilling, Standard Oil Co. of California 1 Maxwell, Ventura County, California, reached 17,250 ft. at the close of 1947, and latest reports are that the well is approaching the record depth.

South Louisiana continued to lead in production depths. Last year's record of 13,778 ft. was surpassed by 126 ft. at the Queen Bess Island discovery well, Jefferson Parish, which produces from 13,904 ft. In Grady County, Oklahoma, Stanolind Oil & Gas Co. 1 Briscoe may top this new record. Encouraging tests have been made at the 1 Briscoe at 13,785 ft., and drilling will continue.



U. S. Drilling Depth Records by States

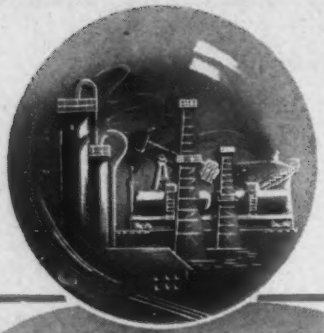
State—	Well and location—	Result	Year comp.	Deepest formation	Total footage
Oklahoma	Superior Oil 51-11 Weller, 11-8n-12w, Caddo Co.	Dry	1947	Pennsylvanian	17,823
California	Standard of California 1 Maxwell, 23-2n-23w, Ventura	....	Drlg.	Miocene (?)	17,250
Upper Gulf Texas	Phillips 3 Schoeps, Millican Salt Dome, Brazos Co.	....	1945	Cretaceous	16,655
Lower Gulf Texas	Texas Co. 6 Yturria L. & L. Co., Raymondville, Willacy Co.	Dry	1947	.....	16,006
Mississippi	Superior 1 Bradford, 1-3n-13w, Forrest Co.	Dry	1946	.....	15,730
South Louisiana	Texas Co. 1 Lafourche Basin Levee, Queen Bess Is., Jefferson	Cond.	1947	Miocene	15,523
South Texas	Quintana Pet. 3-D So. Tex. Syndicate, McMullen Co.	....	1945	Cretaceous	15,301
West Texas	Phillips 1 Price, T. C. Railway Sur., Pecos Co.	....	1944	Ellenburger	15,279
Southeast New Mexico	Phillips 4 State-Lea-Mex., Maljamar, Lea Co.	....	1945	Ordovician	13,998
Florida	Humble Oil & Ref. 2 Gulf Coast Realty, Sunniland field, Collier Co.	Dry	1944	Lime	13,512
Wyoming	Mountain Fuel-Union Pac. 3 Unit, 12-16n-113w, Uinta Co.	Gas	1947	Dakota	13,063
North Louisiana	Union Prod. 1 McDonald Unit, North Lisbon field, Claiborne	....	1942	Smackover	12,952
Colorado	Texas Co.-Calif. Co. 20 Unit, 34-3n-94w, Wilson Creek, Rio Blanco Co.	Dry†	1946	Madison	12,702
Alabama	Union Prod. 1 Waite, 27-8n-1e, Clarke Co.	....	1941	Jurassic	12,399
East Texas Border	Humble Oil & Ref. 1 Pickering Lumber, Shelby Co.	....	1946	Jurassic	12,221
Utah	Pacific Western 1 Unit, 24-14s-7e, Gordon Creek, Carbon Co.	....	Drlg.	Permian	12,060
Arkansas	Union Prod. E-1 Crossett Lumber, 12-19s-7w, Ashley Co.	....	1944	Eagle Mills	11,137
South Central Texas	Quintana Pet. 3-A Washburn, Washburn field, La Salle	....	1942	Edwards	11,042
Michigan	Gulf Ref. 1 Bateson, Kawkawlin field, Bay Co.	Oil‡	1946	St. Peter	10,447
North Dakota	California Co. 1 Kamp, 3-154n-96w, Williams Co.	Dry	1938	Devonian	10,281
Montana	Carter-Phillips 1 Weazlehead, 28-34n-12w, Milk River, Glacier	Dry	1946	Madison	10,102
Pennsylvania	Manufacturers Heat & Light 1 Hackenberry, Mercer Twp., Butler Co.	Dry	1944	Cambrian	10,096
North Carolina	Standard Oil of N. J. 1 Hatteras Light, Dare Co.	Dry	1946	Granite	10,054
West Virginia	Hope Natural Gas 8517 Gribble, Grant Dist., Harrison Co.	Dry	1941	Queenston	10,018
East Texas	Phillips Pet. Co. 1 Englander, Quevada Sur., Smith Co.	Dry	1946	Cotton Valley	13,781
Northwest New Mexico	Southern Union Prod. 9 Barker Creek, 21-32n-14w, San Juan Co.	Gas	1945	Pennsylvanian	9,468
North Central Texas	Standard Oil of Texas 2 Beasley, McKerley Sur., Cooke Co.	....	1946	.....	9,164
New York	New Penn. Dev. 1 Herrington, Woodhull Twp., Steuben Co.	Gas	1944	Oswego	8,625
Texas Panhandle	Sinclair Prairie 1 Henderson, H.G.&N. Ry. 16, Blk. A-8, Wheeler Co.	....	1945	Conglomerate	8,502
Kansas	Stanolind Oil & Gas 1 Feather, 15-35s-33w, Seward Co.	Gas	1947	Crystalline	8,100
South Dakota	Northern Ordnance 1 Harding School Land, 1-17n-1e, Harding	Dry	1943	St. Peter	8,000
Ohio	Penn-Ohio 1-C Knowlton, Sec. 10, Independence Twp., Washington Co.	Dry	1933	Clinton	7,889
Georgia	Warren & Robinson 1 Chandler, Land Dist. 26, Early Co.	Dry	1944	Granite	7,320
Illinois	Pure Oil 3 Billington, 26-1n-7e, Wayne Co.	Dry	1940	St. Peter	7,207
Nebraska	Union Oil of Calif. 15 Agate, Sioux Co.	Dry	1938	Pennsylvanian	6,848
Indiana	Continental 1 Cooper Est., 13-3s-14w, Wabash Twp., Gibson Co.	Dry	1946	Trenton	6,405
Kentucky	California Oil Co. 1 Spears, 13-L-57, Lincoln Co.	....	1946	Granite	6,117
Tennessee	California Co. 1 Beeler, Giles Co.	Dry	1947	Granite	5,750
Iowa	Oil Development 1 Wilson, Page Co.	....	1930	Cambrian	5,305
New Jersey	W. & K. Oil 1 Mathews, Jackson Mills, Ocean Co.	Dry	1929	Wissahickon	5,022
Missouri	Strake Pet. 1 Russell, Pemiscot Co.	Dry	1941	Cambrian	4,748
South Carolina	Parris Island, Beaufort Co. (water supply well)	Dry	1940	Crystalline	3,450

*As of December 31, 1947. †Plugged back and completed as oil well. ‡Now abandoned.

U. S. Producing Depth Records by States

State—	Well and location	Result	Year comp.	Producing formation	Producing footage
Alabama	Hunt Oil 4 Land, Gilbertown field, Choctaw Co.	Oil	1945	Eutaw	3,824
Arkansas	Tide Water-Seaboard Oil 1 Bandow, Patton field, Lafayette	Oil	1944	Smackover	9,330
California	Continental Oil A-2 Kern Co. Land Co., 8-27s-24e, Wasco, Kern Co.	Oil	1938	Miocene	13,096
Colorado	Texas Co.-Calif. Co. 10 Unit, 26-3n-94w, Wilson Creek, Rio Blanco Co.	Oil	1941	Morrison	7,198
East Texas	Humble Oil & Ref. 1 Curtis, Larissa field, Cherokee Co.	Oil	1942	Pettit	10,312
East Texas Border	Magnolia Pet. 1 Orr, Fowler Sur., Lassater field, Marion Co.	Oil	1946	Travis Peak	7,577
Florida	Humble Oil & Ref. 1 Gulf Coast, Sunniland field, Collier Co.	Oil	1943	Glen Rose	†11,626
Illinois	Kingwood Oil 24-A Shanafelt, 20-2n-2e, Salem field, Marion Co.	Oil	1943	Trenton	4,657
Indiana	Lewis 1 Hill, 35-3s-14w, Posey Co.	Oil	1939	McClosky	3,144
Kansas	Olson Drlg. 3 Morrison, Morrison field, Clark Co.	Oil‡	1936	Viola	6,481
Kentucky	United Carbon 1 Howe, Pike Co.	Gas	1932	Devonian	5,170
Lower Gulf Texas	Sun Oil 1 Thompson, Goliad, West, Goliad Co.	....	1945	Wilcox	11,149
Michigan	Gulf Ref. 1 Bateson, Kawkawlin field, Bay Co.	Oil‡	1946	Salina	7,950
Mississippi	California Co. 9 Lees, Cranfield field, Adams Co.	Gas	1946	Paluxy	11,794
Missouri	Cities Service Oil 1 Cook, Tarkio field, Atchison Co.	Oil	1940	Bartlesville	1,444
Montana	Sinclair-Wyo. Oil 1 Wilkins, 28-9s-23e, Northwest Elk Basin, Carbon Co.	Oil	1947	Madison	6,795
Nebraska	Skelly Oil 1 Wiltze, Dawson field, Richardson Co.	Oil	1942	Hunton	2,900
New York	Kane 1 Lewis, West Union Twp., Steuben Co.	Gas	1942	Oriskany	5,222
North Central Texas	Standard Oil of Texas 2 Beasley, McKerley Sur., Cooke Co.	....	....	Ellenburger	8,940
North Dakota	Montana-Dakota Utilities Well No. 155, 10-130-107w, Bowman Co.	Gas	1941	Eagle sand	1,500
North Louisiana	Ohio Oil Co. 1 Deloach 3-H, Haynesville field, Claiborne	Oil	1946	Smackover	10,741
Northwest New Mexico	Southern Union Prod. 9 Barker Creek, 21-32n-14w, San Juan	Gas	1945	Pennsylvanian	9,468
Ohio	East Ohio Gas 2 Phillips, Sec. 23, Washington Twp., Harrison	Gas	1941	Clinton	5,820
Oklahoma	Stanolind Oil & Gas 1 Briscoe, 4-4n-5w, Grady Co.	Oil	Drlg.	Simpson	13,875
Pennsylvania	American Locomotive Co. 5 Steiner, Unity Twp., Westmoreland	Gas	1946	Oriskany	8,014
South Central Texas	Quintana Pet. 1 Mull, Muil field, Atascosa Co.	Oil	1946	Edwards	9,019
South Louisiana	Texas Co. 1 Lafourche Basin Levee, Queen Bess Is., Jefferson	Cond.	1947	Miocene	13,904
South Texas	Jones 2-C Exzell, San Caja field, McMullen Co.	Oil	1944	Wilcox	6,922
Southeast New Mexico	Humble Oil & Ref. 1 Leonard, Dublin field, Lea Co.	Oil	1944	Ellenburger	11,928
Tennessee	Alvin York 2 Print Huff, Pickett Co.	Oil	1947	Knox	1,702
Upper Gulf Texas	Superior 1 So. Tex. Dev. C-9, Lake Creek field, Montgomery	Oil	1943	Wilcox	11,805
West Texas	Slick-Urshel & Plymouth Oil 1 Alford, Scott Sur., Upton Co.	Oil	1947	Ellenburger	12,022
West Virginia	Ohio Oil 1 Kuykendall et al, Dry Fork Dist., Tucker Co.	Gas	1946	Oriskany	†8,410
Wyoming	Mountain Fuel-Union Pac. 3 Unit, 12-16n-113w, Uinta Co.	Gas	1947	Dakota	13,036

*As of December 31, 1947. †Total depth figure. ‡Now abandoned.



REVIEW - FORECAST

DEPTH TRENDS

New Footage Record Established Despite Acute Material Shortage

by Herndon David

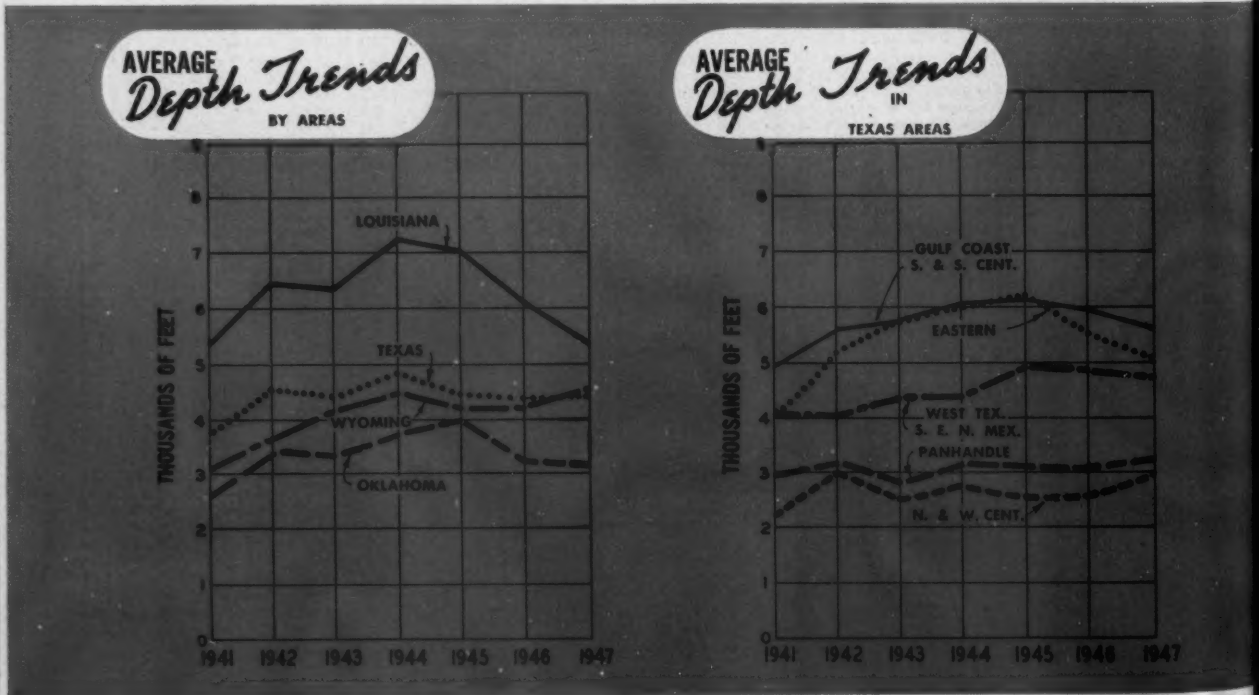
A NEW record, the greatest amount of footage ever drilled during any 1-year period in the history of the petroleum industry was established by oil operators of the United States during 1947 despite the fact that they were severely hampered by acute shortages of drill pipe and casing. The footage totaled 114,013,000 ft., the equivalent of 21,593 miles of hole or nearly three times the diameter of the earth. It topped the previous record of 98,509,000 ft., drilled in 1941, by 15.7 per cent.

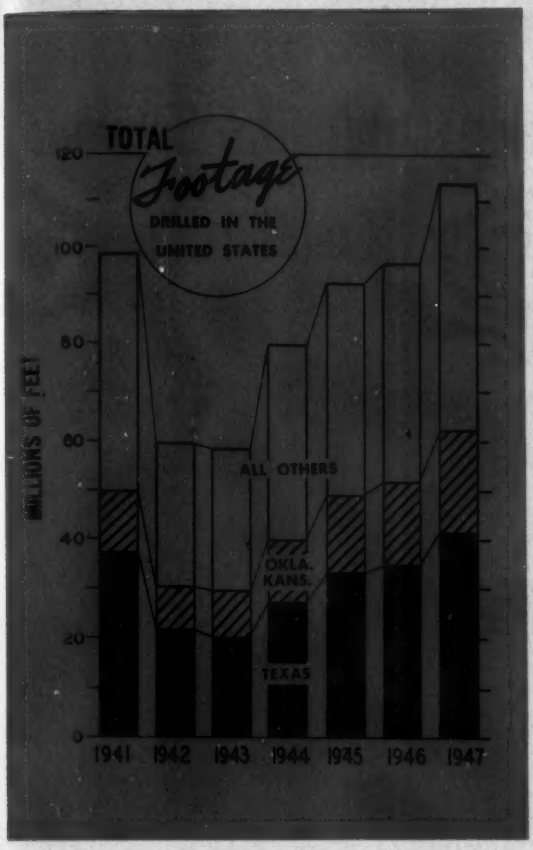
Every major oil-producing area showed large increases in total footages drilled. Texas dominated the picture by accounting for 36 per cent of the entire amount of footage drilled, while Oklahoma-Kansas accounted for 18 per cent and California for 8 per cent. These are the same percentages of the total that were contributed by these states during 1946, indicating that an increased number of completions rather than a sharp increase in average footage per well was responsible for the record-breaking amount of total footage.

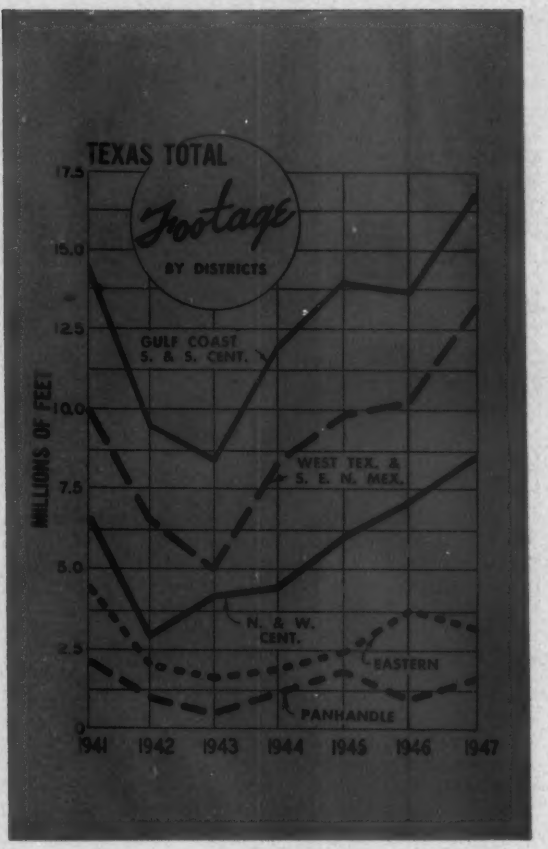
Average footage, however, did show an increase during the past year, the average per each well drilled being 3,445 ft. This was slightly under the record of 3,469 ft. per well drilled during 1945, but still enough over the 1946 average to indicate a definite trend toward deeper drilling. While average footage showed a rapidly increasing trend during the war years of 1941-45, it fell off considerably in 1946. This was attributed to two causes. First, many of the shallow oil fields discovered during the war years were developed on a 40-acre spacing pattern due to wartime drilling restrictions. When these restrictions were lifted, many operators went back into the fields to complete their development programs on a 10 or 20-acre spacing basis. This resulted not only in increased number of wells drilled, but also in a decreased amount of footage drilled per well completed.

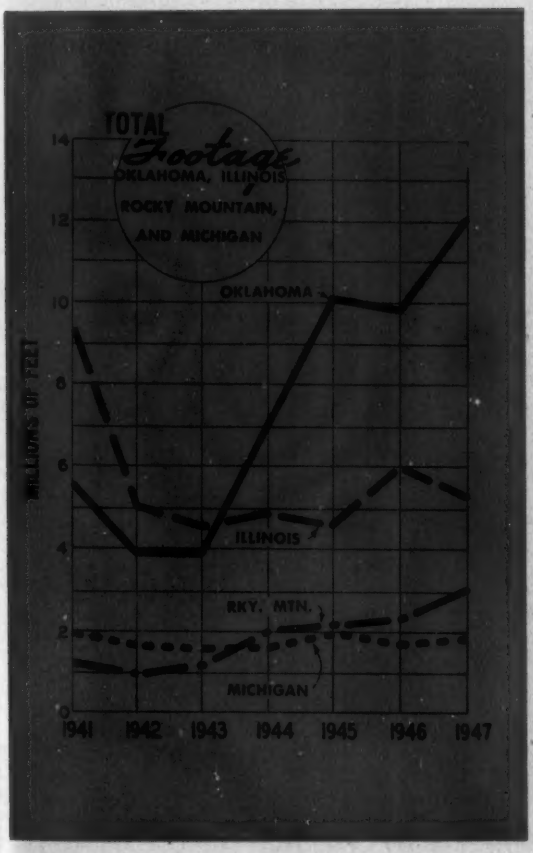
Secondly, much of the equipment used throughout the war period was not in condition during 1946 to withstand the heavy loads imposed by deep drilling. Since this equipment could not be replaced immediately many operators contented themselves with replaying many of the less-favorable shallow areas disregarded in the frenzied search for large fields during the war.

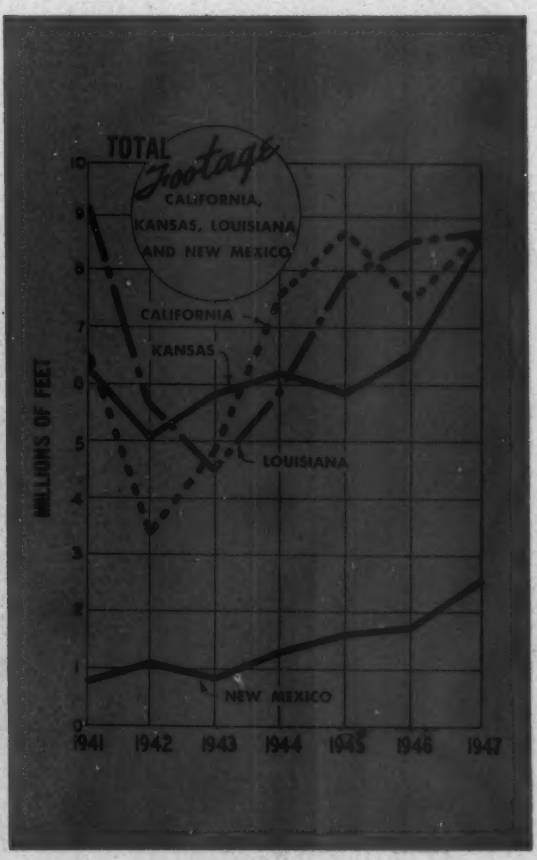
The trend back toward deeper drilling established during 1947, however, indicates that operators are once again stepping out into the deeper areas.

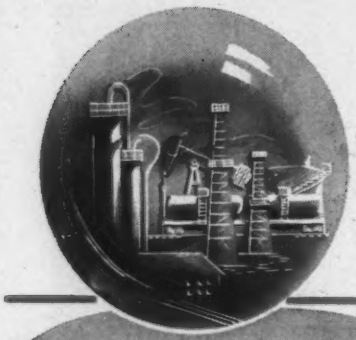



TOTAL
Footage
DRILLED IN THE UNITED STATES
MILLIONS OF FEET
120
100
80
60
40
20
0
ALL OTHERS
OKLA. KANS.
TEXAS
1941 1942 1943 1944 1945 1946 1947


TEXAS TOTAL
Footage
BY DISTRICTS
MILLIONS OF FEET
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0
GULF COAST S. & S. CENT.
WEST TEX. & S. E. N. MEX.
N. & W. CENT.
EASTERN
PANHANDLE
1941 1942 1943 1944 1945 1946 1947


TOTAL
Footage
OKLAHOMA, ILLINOIS ROCKY MOUNTAIN, AND MICHIGAN
MILLIONS OF FEET
14
12
10
8
6
4
2
0
OKLAHOMA
ILLINOIS
RKY. MTN.
MICHIGAN
1941 1942 1943 1944 1945 1946 1947


TOTAL
Footage
CALIFORNIA, KANSAS, LOUISIANA AND NEW MEXICO
MILLIONS OF FEET
10
9
8
7
6
5
4
3
2
1
0
CALIFORNIA
KANSAS
LOUISIANA
NEW MEXICO
1941 1942 1943 1944 1945 1946 1947



REVIEW - FORECAST

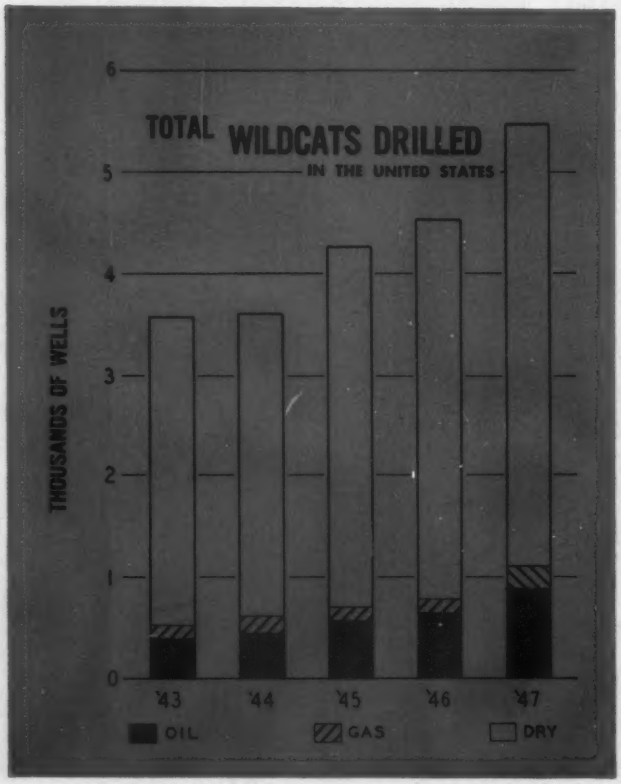
DISCOVERIES

Exploration Campaign Stepped Up to Highest Level in History

by Leigh S. McCaslin, Jr.

WITH unprecedented demand and greatly increased crude prices as an incentive, oil operators stepped up their exploration campaigns during 1947 to the highest level in the history of the industry. Stepping far out into rank wildcat territory and at the same time continuing their careful search of the older areas, these operators completed a record-breaking total of 5,461 exploratory wells, an increase of 17.3 per cent over the previous year. Better-than-average success attended the search for new oil with 1,112, or 20.6 per cent, of the wells rated as successful in finding oil or gas. Of this number, 864 were oil wells while the remaining 248 were gas-well completions. This was an increase of 26.5 per cent over 1946 in oil discoveries and 48.8 per cent in gas discoveries. These new discoveries, however, included new pay zones and extensions to the older fields as well as the new-field discovery wells.

On the basis of size of reserves in newly discovered fields, Oklahoma ranked first, followed by Kansas, with Texas a close third. Illinois was fourth, while Wyoming was fifth, Montana sixth, and California seventh; although the ultimate importance of the discoveries in these areas is by no means indicated by their present standing. On the basis of exploratory drilling, however, Texas continued to dominate the picture with a total of 1,460 wildcat wells completed, while Oklahoma was second with 693, followed by Illinois with 410, Kansas with 345, and California with 280.



Texas

In West Texas, the discovery of Ellenburger production in southeastern Upton County, 10 miles north of Big Lake field, late in the year was considered to be one of the most important developments of recent years in the entire Permian basin area. Significance of this test is that it has extended Ellenburger production far to the east of the Central Platform and into the deep Midland basin, thus opening a large new area to exploration. The new discovery has aroused considerable controversy as to areal extent and reserves of the field it has opened, and many observers are of the opinion that it will rival Big Lake field in this respect.

The remaining Texas areas witnessed a relatively poor year in so far as discoveries are concerned. While many new discoveries were made in these areas during the year, none of the new fields at present appears to be a major accumulation.

Louisiana

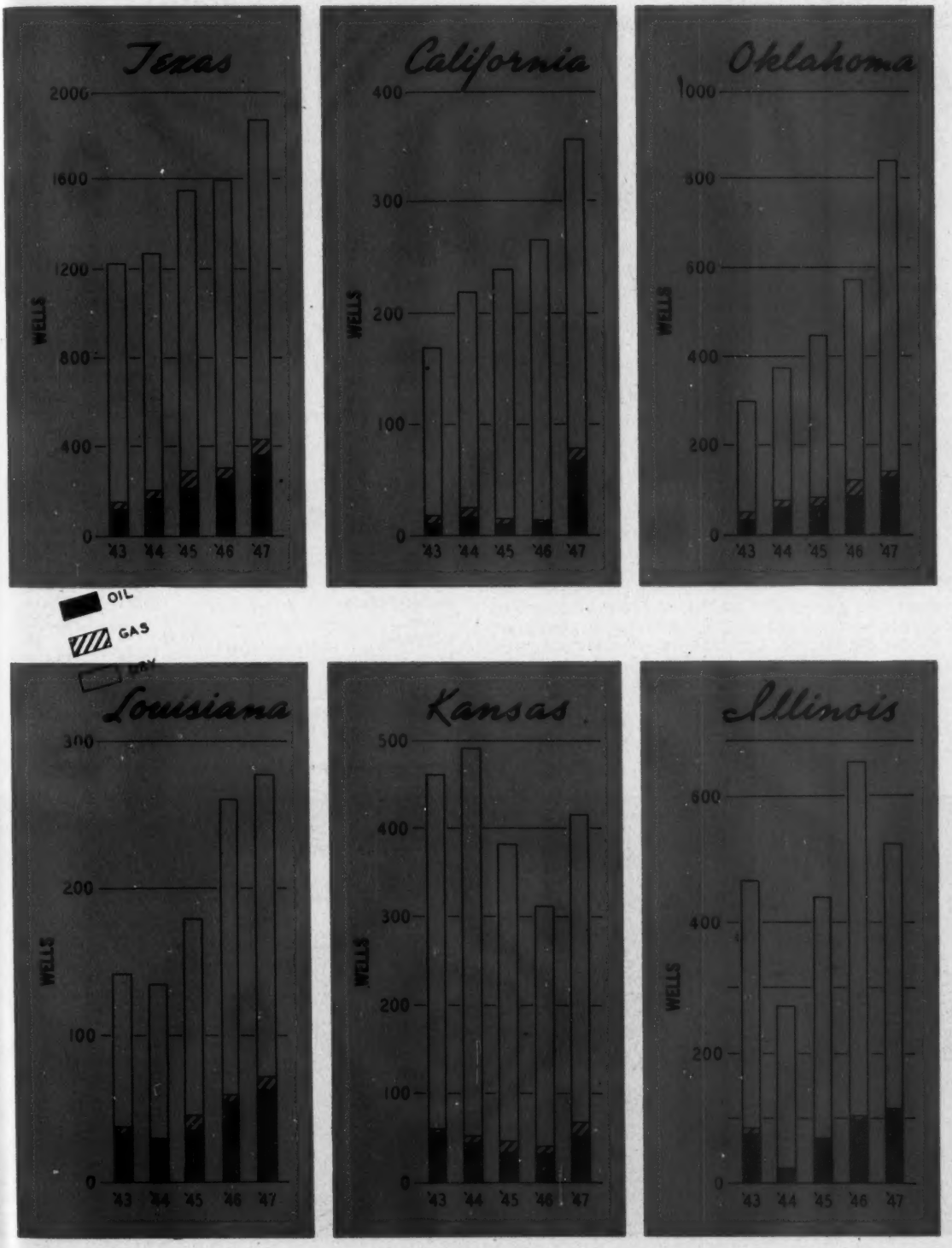
Probably the most important strike of 1947, and what may prove to be the "pathfinder" to exploitation of oil fields in the Gulf of Mexico, was the discovery of the Block 32 field approximately 12 miles off the coast of southern Louisiana. The discovery well, drilled by Kerr-McGee Oil Industries in conjunction with Stanolind Oil & Gas Co. and Phillips Petroleum Co., produced 600 bbl. of 25°-gravity oil daily through a 32/64-in. choke from the very shallow depth of 1,734-50 ft. Successful completion of the well not only has attracted attention to the fact that there are excellent possibilities for major oil accumulations in the Gulf of Mexico, but also has helped pave the way to the solution of many of the problems of open-water drilling.

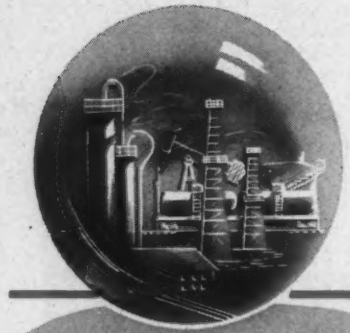
Oklahoma-Kansas

Oklahoma operators during 1947 conducted a highly active and successful exploration campaign. The state as a whole ranked first from the standpoint of new oil discovered and second from the number of wildcats drilled. The high rank in drilling came

from a greatly accelerated wildcatting program in all parts of the state, while the high rank in new reserves came largely from development in the "golden trend" of the Garvin-McClain County area in the southeast end of the Anadarko basin. Discoveries in this area are likely to continue to expand in importance.

Kansas, which ranked second with respect to new reserves discovered, placed fourth insofar as exploration activity was concerned during 1947. Of the 345 wildcat ventures drilled in this state during the year, 52 were completed as oil wells and 15 as gas wells. These totals included extensions and new pay zones, as well as new fields. The high rank of the state in new reserves was due largely to the fact that most of the discoveries were shallow and rapid development of the fields followed, thus allowing more of the ultimate production of each field to be listed as proved reserves in Kansas than in other states.





REVIEW - FORECAST

U. S. PRODUCTION

U. S. Crude Production Neared 2-Billion-Barrel Mark in 1947

by Henry D. Ralph

PREDICTIONS as well as records were broken by the production of crude petroleum in the United States, which reached the total of 1,896,679,000 bbl. in 1947.

This is an increase of 147,907,000 bbl.—7.8 per cent—over the 1946 output. Only once before in history has production increased so much in a single year. That was 1944, when the spur of war demand increased crude output by a total of 172,140,000 bbl. in a single year.

But that was accomplished largely by falling back on excess producing capacity, which was available but not needed until then, and by some improvised adjustments in transportation facilities to increase the volume of crude which could be carried away from producing fields.

Since then the increase has been attained the hard way—by wildcatting and new drilling, with a struggle for every ton of steel required for tubular goods and line pipe. In the ensuing years production has been upward, but at a lower rate—gaining 33,350,000 bbl. in 1945, and 37,669,000 bbl. in 1946.

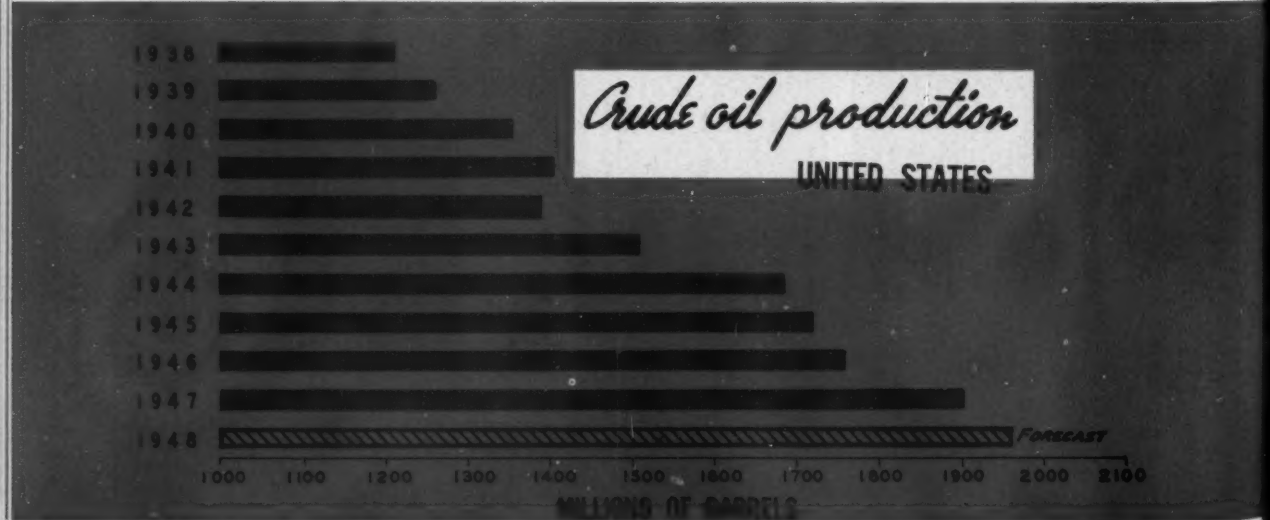
More than half of the 1947 increase—56.5 per cent—was contributed by Texas, which increased its output by 83,697,000 bbl. to reach a total production of 848,290,000 bbl. Other major contributors were California, which accounted for 13.6 per cent of the national increase; Louisiana, 11.4 per cent, and Mississippi, 7.5 per cent.

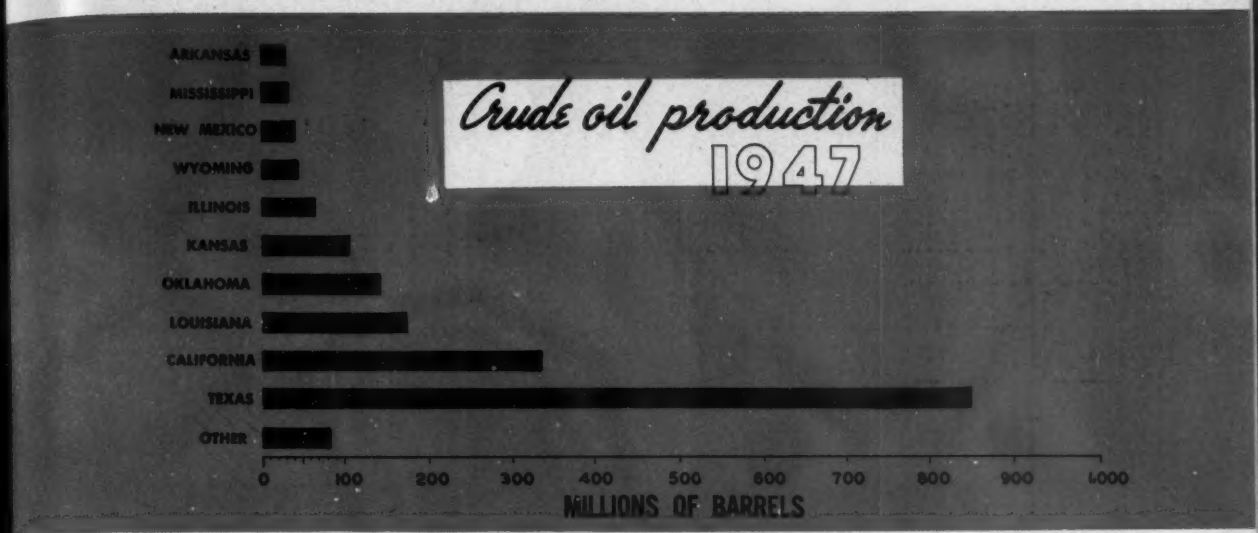
Six major producing states set new records for themselves last year—California, Colorado, Louisiana, Mississippi, New Mexico, and Texas. Together

CRUDE-OIL PRODUCTION RECORDS BY STATES
(Thousands of barrels)

	Record year	Production in record year
Alabama	1947	387
Arkansas	1925	77,398
California	1947	336,741
Colorado	1947	15,640
Florida	1947	260
Illinois	1940	147,647
Indiana	1904	11,339
Kansas*	1943	106,839
Kentucky†	1946	11,132
Louisiana	1947	168,471
Michigan	1939	23,462
Mississippi	1947	35,369
Montana	1946	9,029
New Mexico	1947	40,970
New York	1882	6,685
Ohio	1896	23,941
Oklahoma	1927	277,775
Pennsylvania	1891	31,424
Texas	1947	848,290
Virginia	1947	66
West Virginia	1900	16,196
Wyoming	1923	44,785

*Includes Nebraska and Missouri. †Includes Tennessee.





these six produced 1,445,481,000 bbl. of crude petroleum, or 76.2 per cent of the nation's 1947 total.

California boosted its production by 20,135,000 bbl. or 6.4 per cent, to reach 336,741,000 bbl., bettering its previous record of 326,482,000 bbl. set in 1945.

Colorado's output jumped 4,049,000 bbl. to reach 15,640,000 bbl., an increase of 35 per cent—an impressive record but short of the 6,632,000-bbl. increase achieved in 1946.

Louisiana, which has set itself a new production record every year since 1942, did it again with a gain of 11.1 per cent—16,863,000 bbl.—bringing its 1947 output to 168,471,000 bbl.

Mississippi showed the phenomenal increase of 45.8 per cent to bring its output to 35,369,000 bbl. for the year, or 11,121,000 bbl. more than in 1946. Added to lesser increases made the 2 preceding years, this state has now passed its previous record of 28,833,000 bbl. established in 1942.

UNITED STATES PRODUCTION DAILY AVERAGE PER WELL

	1947 (Thou. bbl.)	Producing wells 1-1-48	Daily avg. bbl. per well
Alabama	397	33	32.1
Arkansas	29,769	3,451	23.6
California	336,741	25,821	35.7
Colorado	15,640	550	77.9
Florida	260	5	142.4
Illinois	65,460	29,638	6.1
Indiana	6,413	2,895	6.1
Kansas	104,328	27,867	10.3
Kentucky	9,517	14,635	1.8
Louisiana	168,471	8,823	52.3
Michigan	16,154	3,608	12.3
Mississippi	35,369	1,115	86.9
Montana	8,744	2,485	9.6
Nebraska	220	55	10.9
New Mexico	40,970	4,684	24.9
New York	4,757	17,740	0.7
Ohio	3,081	22,490	0.4
Oklahoma	142,094	53,540	7.3
Pennsylvania	12,707	56,420	0.6
Texas	848,290	107,159	21.6
West Virginia	2,596	16,510	0.4
Wyoming	44,582	4,187	29.2
Miscellaneous	129	86	4.1
Total U. S.	1,896,679	403,797	12.9

New Mexico broke an even older record, increasing its output by 11.6 per cent, or 4,266,000 bbl. This brought its 1947 output to 40,970,000 bbl., whereas its best previous output was 39,569,000 bbl. in 1941.

Texas, which has shown large and consecutive increases every year since 1943, maintained this record and produced 848,290,000 bbl. in 1947. This is 83,697,000 bbl., or 10.9 per cent above its 1946 output of 764,593,000 bbl.

Newcomers Set Records

Three "baby" members of the oil-producing family of states also set new records for themselves. Florida's production increased 391 per cent because its output of 260,000 bbl. was 207,000 bbl. more than the 53,000 bbl. in 1946.

Virginia did almost as well, percentagewise, its 66,000 bbl. being 312 per cent greater than the 16,000 bbl. produced in 1946. The third newcomer, Alabama, produced 387,000 bbl. in 1947, but this was only 5,000 bbl. more than its 1946 record.

Several other states increased their production by respectable percentages last year, though their 1947 totals failed to equal their past records.

Arkansas produced 29,769,000 bbl., an increase of 1,670,000 bbl., or 6 per cent, over 1946, but its record was set back in 1925 when it produced 77,398,000 bbl.

Kansas increased its production by 8,023,00 bbl.—8.3 per cent—to reach a total of 104,602,000 bbl., just shy of its 1943 record of 106,639,000 bbl.

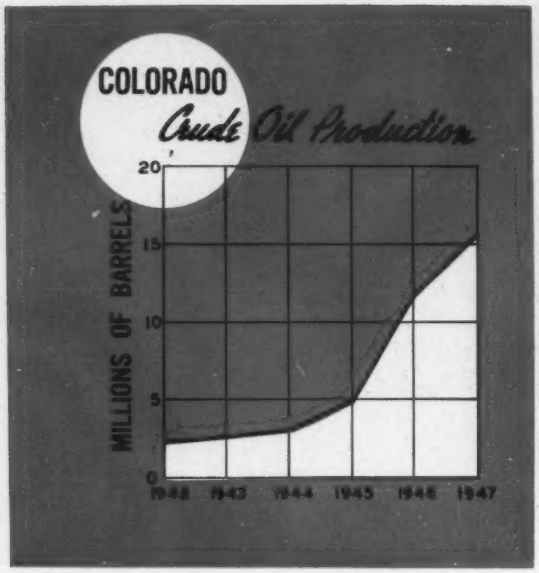
Ohio, which has barely held its own in recent years, increased its production by 189,000 bbl., or 6.5 per cent, to a total of 3,081,000 bbl. for the year—a creditable achievement for an oldtimer whose heyday was back in 1896 when it produced 23,941,000 bbl.

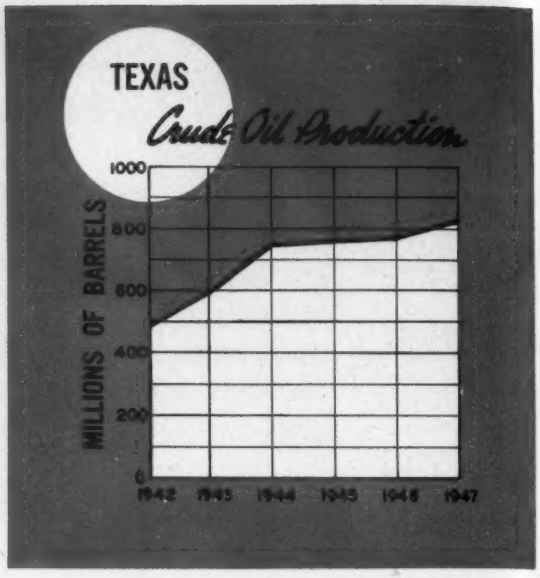
Oklahoma's gain for the year was 3.6 per cent, reversing the slight drop during 1946 and resuming the slow climb started in 1944. The 1947 output was 142,094,000 bbl., or 4,866,000 bbl. more than during 1946. Oklahoma's record production was 277,775,000 bbl. in 1927.

Wyoming, alphabetically the last of the states showing gains in 1947, produced 44,582,000 bbl., which is an increase of 6,038,000 bbl., or 15.7 per cent over 1946. This is almost equal to the state's record of 44,785,000 bbl. set in 1923.

Only 8 of the 22 oil-producing states produced less in 1947 than in 1946.

The biggest drop was in the production of Illinois, which has been declining markedly for the past half dozen years. This state's 1947 output of 65,460,000





bbl. was 9,153,000 bbl. below its 1946 figure. Its peak output was 147,647,000 bbl. in 1940.

Indiana, which has been fluctuating more or less downward for several years, dropped 418,000 bbl. during 1947 and produced only 6,413,000 bbl. Its record year was 1904, when it produced 11,339,000 bbl.

Kentucky reversed the steady and impressive climb it had been making for several years and dropped off 1,606,000 bbl., below 1946—its record year—producing 9,526,000 bbl. in 1947.

Michigan continued its downward trend, and its 1947 output of 16,154,000 bbl. was 984,000 bbl. less than 1946. 1939 was Michigan's peak, with an output of 23,462,000 bbl.

Montana, which has kept its production rather steady in recent years, dropped slightly last year. Its total of 8,744,000 bbl. was 285,000 bbl. below its 1946 record output of 9,029,000 bbl.

New York, another oldtimer, which made its record in 1882 with 6,685,000 bbl. but has come fairly close to that in recent years, fell off a bit—by 133,000 bbl.—and produced 4,757,000 bbl. last year.

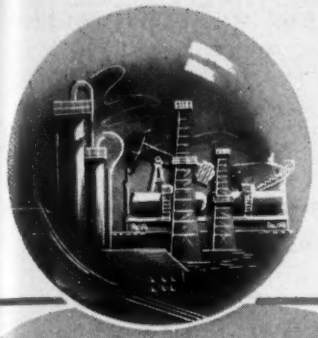
Pennsylvania produced 12,707,000 bbl. last year, a decrease of 350,000 bl. below 1946. Its record output was 31,424,000 bbl. in 1891.

West Virginia lost 343,000 bbl. during the year and its total was only 2,596,000 bbl. In 1900 it produced 16,196,000 bbl.

UNITED STATES PRODUCTION CRUDE OIL—BY STATES—1942-1947
(In thousands of barrels per year)

	1947 prod. change	1947	1946	1945	1944	1943	1942	Cum. prod. 1857-1947
Alabama	+ 5	387	382	181	54	.....	.....	1,004
Arkansas	+ 1,670	29,769	28,099	28,613	29,418	27,600	26,628	723,672
California	+ 20,135	336,741	316,606	326,482	311,793	284,188	248,326	7,640,697
Colorado	+ 4,049	15,640	11,591	4,959	2,944	2,320	2,199	82,200
Florida	+ 207	260	53	30	12	.....	.....	355
Illinois	— 9,153	65,460	74,613	75,210	77,413	82,260	106,391	1,301,054
Indiana	— 418	6,413	6,831	4,868	5,118	5,283	6,743	173,604
Kansas*	+ 8,023	104,602	96,579	96,359	99,227	106,839	98,996	1,773,754
Kentucky†	— 1,606	9,526	11,132	10,325	9,621	7,909	4,556	225,044
Louisiana	+ 16,983	168,471	151,608	130,566	129,207	123,592	115,785	2,011,376
Michigan	— 984	16,154	17,138	17,259	18,490	20,768	21,754	272,980
Mississippi	+ 11,121	35,369	24,248	18,775	16,337	13,807	28,833	162,595
Montana	— 285	8,744	9,029	8,997	8,627	7,916	8,074	142,042
New Mexico	+ 4,266	40,970	36,704	37,281	39,555	38,896	31,544	537,616
New York	— 133	4,757	4,890	4,848	4,697	5,059	5,421	162,912
Ohio	+ 189	3,081	2,892	2,828	2,937	3,322	3,543	607,104
Oklahoma	+ 4,866	142,094	137,228	138,036	124,616	123,152	140,690	5,731,400
Pennsylvania	— 350	12,707	13,057	12,515	14,118	15,757	17,779	1,100,994
Texas	+ 83,697	848,290	764,593	755,533	748,122	594,343	483,097	11,373,610
Virginia	+ 50	66	16	4	3	.....	.....	89
West Virginia	— 343	2,596	2,939	2,875	3,067	3,349	3,574	435,279
Wyoming	+ 6,038	44,582	38,544	35,359	32,398	34,253	32,812	751,409
Total U. S.	+147,907	1,896,679	1,748,772	1,711,103	1,677,764	1,505,613	1,386,845	35,211,249

*Includes Nebraska and Missouri. †Includes Tennessee.



REVIEW - FORECAST

MAJOR FIELDS

110 Fields Produced Nearly 50 Per Cent of Oil in 1947

by Herndon David

ALMOST 50 per cent of the total amount of oil produced in the United States during 1947 come from only 110 fields. These few major fields, each having an ultimate production of 100,000,000 bbl. or more, represent about 1 per cent of the total number of fields ever found in the United States, yet they have produced more than 55 per cent of all the oil ever produced and, at present, contain 61 per cent of the country's proven reserves.

The ratio of remaining reserves to current production throughout the history of the industry has averaged approximately 13.5. If the reserves are considered as the raw-material inventory of the petroleum industry, this would mean that during an average year the oil operators end up with a 13½-year supply of crude oil. The raw-material inventory of the major fields at their current rate of production is a 15½-year supply.

But this is only half the picture and leads to an entirely false conclusion. Current demand for petroleum is at an all-time high. In order to meet this demand total production from all fields has been stepped up to a record high. While production from the major fields also has been increased, it has not increased in proportion to what the fields have produced in the past. Throughout the history of the major fields, they have yielded approximately 55 per cent of all the oil ever produced. At present, however, they are producing only 49 per cent of the country's total.

If the major fields were supplying 55 per cent of the total United States production at the present time, they would be pouring forth crude oil at the rate of 1,056,450,000 bbl. per year. During the past year, however, they supplied only 929,800,000 bbl. This is 126,570,000 bbl. less than what they should have produced in order to maintain their standing. With the exception of East Texas, each of the major fields produced an average of 7,443,000 bbl. during 1947. At this rate, 17 additional major fields would be needed to supply the extra 126,570,000 bbl.

In addition to the 17 new major fields needed to bring that class of production back up to its proper relationship with total United States production, 5 more will be needed during the coming year just to maintain reserves. This is because it will require the finding of about 2,000,000,000 bbl. in 1948 to maintain reserves. In the past, 55 per cent of the oil has come from major fields. In 1948, therefore, 55 per cent of 2,000,000,000 bbl., or 1,100,000,000 bbl., should come from major fields. Since these fields average approximately 250,000,000 bbl. each in ultimate production, about five more will be needed in 1948 to maintain past relationships.

It would appear, then, that the country needs approximately 22 new major fields in order to maintain the same balance in the future that has prevailed in the past. This, however, is not entirely true, for some of the fields discovered in the past few years and not now listed as major fields will undoubtedly fall into this class as future development proves them to be larger and larger fields.

Records of the past few years prove that such accumulations are still being found. In 1942, Fullerton in West Texas was discovered; in 1943, it was Cranfield and Heidelberg in Mississippi, and West Edmond in Oklahoma; and in 1944, the drill tapped Delhi-Big Lake in Louisiana and T-X-L in West Texas. And there were probably a few more discovered during these years and during 1945 and 1946, which will eventually prove to be 100,000,000-bbl. fields.

Perhaps the best way of determining where these fields can be found is to learn what causes such accumulations. Surely it is not structure alone, for

many excellent structures in the past have failed to yield such quantities of oil while the structures of some of the current major fields are not nearly so good as those of some of the smaller reservoirs. It is not geographic location that accounts for these accumulations, for nearly every oil-producing state has one or more major fields.

So there must be some other factor, a factor unknown at present, that causes large quantities of oil to accumulate in one place and form a major field. When this factor is determined, the oil operators' chances of finding major oil fields will probably be increased materially.

MAJOR FIELDS* VS. TOTAL UNITED STATES RESERVES AND PRODUCTION

(In thousands of barrels)

State and field—	Year of first discovery	Est. ultimate prod.	Remaining reserves 1/1/48	Cumulative Prod. to 1/1/48	Prod. 1947	Prod. 1946	Main pays sand (S) or lime (L)	Geologic age of main production
CALIFORNIA:								
Buena Vista	1909	440,000	92,603	347,397	17,257	14,755	S	Plio.
Coalinga, East	1900	329,000	70,070	258,930	5,738	6,218	S	Plio.-Mio.
Coalinga, Nose	1938	366,000	250,482	115,518	19,265	17,497	S	Eocene
Coalinga, West	1900	185,000	24,142	160,858	2,442	2,509	S	Plio.-Mio.
Coles Levee, North	1938	112,000	74,559	37,441	6,104	5,676	S	Mio.
Elk Hills	1919	470,000	273,018	196,982	2,351	3,668	S	Plio.-Mio.
Kern Front	1925	103,000	37,574	65,426	3,210	3,237	S	Plio.
Kern River	1899	335,000	37,216	297,784	3,731	3,589	S	Plio.
Kettleman North Dome	1928	450,000	112,684	337,316	13,475	13,849	S	Mio.-Eocene
McKittrick-Cymric	1887	153,000	40,857	112,143	7,177	4,195	S	Plio.
Midway-Sunset	1901	825,000	104,134	720,866	15,667	15,318	S	Plio.-Mio.
Mount Poso	1926	151,000	68,697	82,303	4,153	4,815	S	Mio.
Rio Bravo	1937	100,000	57,109	42,891	4,567	4,883	S	Mio.
Santa Maria	1903	255,000	83,367	171,633	8,158	4,921	S	Plio.-Mio.
Santa Maria Valley	1934	177,000	92,847	84,153	9,560	11,929	S	Mio.
Ventura Avenue	1916	520,000	182,173	337,827	17,713	16,908	S	Plio.
Brea Olinda	1889	235,000	42,297	192,703	4,463	3,946	S	Plio.-Mio.
Coyote, West	1909	200,000	45,564	154,436	5,518	5,574	S	Plio.
Dominguez	1923	235,000	61,792	173,208	5,441	4,290	S	Plio.-Mio.
Huntington Beach	1920	547,000	151,167	395,833	18,318	17,082	S	Plio-Mio.
Inglewood	1924	200,000	39,524	160,476	4,329	4,721	S	Plio.-Mio.
Long Beach	1921	805,000	78,575	726,425	8,605	9,055	S	Plio.-Mio.
Montebello	1917	175,000	26,483	148,517	2,699	3,129	S	Plio.-Mio.
Richfield	1919	128,000	20,655	107,345	2,411	2,595	S	Plio.
Santa Fe Springs	1919	570,000	52,645	517,355	5,896	6,117	S	Plio.-Mio.
Seal Beach	1926	143,000	33,302	109,698	4,045	3,693	S	Plio.-Mio.
Torrance	1922	152,000	29,972	122,028	2,942	3,126	S	Mio.
Wilmington	1935	725,000	356,392	368,608	47,698	40,171	S	Plio.-Mio.
Subtotal		9,086,000	2,540,000	6,546,000	252,933	234,466		
ROCKY MOUNTAIN AREA:								
Elk Basin	1915	300,000	265,565	34,435	5,877	5,838	S	Pa.
Lance Creek	1918	105,000	27,324	77,676	3,907	4,669	S	Jur.-Pa.
Oregon Basin	1927	140,000	97,319	42,681	3,970	4,032	S-L	Cret.-Pa.
Rangely	1902	310,000	286,680	23,320	11,680	8,018	S	U. Cret. Pa.
Salt Creek	1906	400,000	73,111	326,889	4,533	4,658	S	
Subtotal		1,255,000	749,999	505,001	29,967	27,215		
OKLAHOMA:								
Avant	1904	106,000	7,663	98,337	659	716	S	Pa.
Bowlegs	1926	140,000	12,127	127,873	1,172	1,169	S	Pa.-Sil.-Dev.-Ord.
Burbank and So.	1920	250,000	26,415	223,585	2,615	4,813	S	Pa.
Cushing	1912	410,000	33,203	376,797	2,839	2,792	S-L	Pa.-Ord.
Earlsboro	1924	135,000	4,410	130,590	616	716	S	Pa.-Sil.-Dev.-Ord.
Edmond, West	1943	180,000	106,557	73,443	14,936	23,565	L	Sil.-Dev.-Hunton
Fitts	1933	118,000	13,000	105,000	1,287	1,518	S	Pa.-Sil.-Dev.-Ord.
Glenn Pool	1905	255,000	21,675	233,325	2,568	2,418	S	Pa.-Ord.
Healdton	1913	230,000	24,224	205,776	2,431	2,438	S	Pa.-Ord.
Hewitt and West	1919	113,000	7,578	105,422	1,672	1,696	S	Pa.-Ord.
Little River	1927	131,000	10,610	120,390	1,432	1,159	S	Pa.-Ord.
Oklahoma City	1928	725,000	72,782	652,218	9,670	10,693	S	Pa.-Ord.-Wilcox
Seminole City	1926	150,000	11,821	138,179	1,271	1,307	S	Pa.-Sil.-Dev.-Ord.
St. Louis	1927	185,000	14,777	170,223	1,356	1,500	S	Pa.-Sil.-Dev.-Ord.
Tonkawa	1921	130,000	5,951	124,049	374	396	S	Pa.-Ord.-Wilcox
Subtotal		3,258,000	372,793	2,885,207	44,898	56,898		
KANSAS:								
El Dorado	1916	225,000	29,409	195,591	2,764	2,618	L	Pa.-Ord.
Silica	1931	110,000	32,646	77,354	5,195	5,195	L	Pa.-Ord.
Trapp	1939	160,000	64,691	95,309	11,371	11,042	L	Pa.-Ord.
Subtotal		495,000	126,746	368,254	19,330	18,855		
ARKANSAS:								
Magnolia	1938	100,000	49,515	50,485	4,643	4,683	S-L	Jurassic
Smackover	1922	465,000	49,963	415,037	3,954	4,070	S	Jur.-U. Cret.
Subtotal		565,000	99,478	465,522	8,597	8,753		
LOUISIANA:								
Caddo	1905	195,000	19,229	175,771	2,332	1,897	S	U. and L. Cret.
Delhi-Big Creek	1944	175,000	157,501	17,499	9,941	6,359	S	U. Cret.
Erath	1940	125,000	101,251	23,749	6,549	6,609	S	Ter.-Mio.
Haynesville	1921	125,000	30,982	94,018	3,099	2,936	S-L	U. and L. Cret.
Jennings	1901	121,000	22,716	98,284	1,823	2,443		
Rodessa	1930	100,000	10,035	89,965	1,714	2,025	L	Cret.
Subtotal		841,000	341,714	499,286	21,854	22,269		

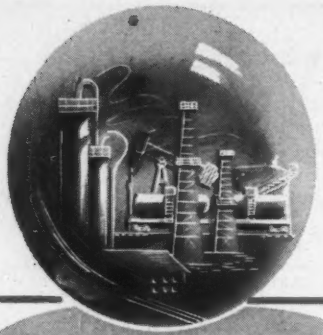
(Continued on Next Page)

MAJOR FIELDS* VS. TOTAL UNITED STATES RESERVES AND PRODUCTION (Continued)

(In thousands of barrels)

State and field—	Year of first discovery	Est. ultimate prod.	Remaining reserves 1/1/48	Cumulative Prod. to 1/1/48	Prod. 1947	Prod. 1946	Main pays sand (S) or lime (L)	Geologic age of main production
MISSISSIPPI:								
Cranfield	1943	100,000	87,246	12,854	5,540	4,457	S	Cret.
Heidelberg	1944	110,000	96,504	13,496	5,052	4,084	S	Cret.
Tinsley	1939	145,000	44,007	100,993	6,749	8,090	S	Cret.
Subtotal		355,000	227,857	127,143	17,341	16,631		
ILLINOIS:								
Bridgeport	1906	260,000	21,458	238,542	2,267	2,272	S	Pa.
Louden	1937	190,000	53,160	136,840	7,385	8,243	S-L	Miss.-Dev.
Robinson	1906	165,000	10,624	154,376	1,100	1,118	S	Pa.
Salem	1938	240,000	36,663	203,337	5,239	5,967	S-L	Miss.-Dev.
Subtotal		855,000	121,905	733,095	15,991	17,600		
NEW MEXICO:								
Eunice	1928	150,000	63,532	86,468	4,792	5,094	L	Perm.
Hobbs	1928	175,000	55,245	119,755	3,562	3,569	L	Perm.
Monument	1934	180,000	93,048	86,952	6,541	6,585	L	Perm.
Vacuum	1929	130,000	90,827	39,173	4,099	4,054	L	Perm.
Subtotal		635,000	302,652	332,348	18,994	19,282		
EASTERN TEXAS:								
East Texas field	1930	5,000,000	2,523,909	2,476,091	118,643	120,581	S	U. Cret.-Woodbine
Hawkins	1940	480,000	401,187	78,813	17,083	14,786	S	U. Cret.-Woodbine
Mexia	1912	107,000	6,109	100,891	475	467	S	U. Cret.-Woodbine
Powell	1923	125,000	6,866	118,134	400	440	S	U. Cret.-Woodbine
Talco	1938	190,000	88,102	101,898	8,898	8,741	L	L. Cret.-Paluxy
Van	1929	450,000	267,073	182,927	10,446	10,690	S	U. Cret.-Woodbine
Subtotal		6,352,000	3,293,246	3,058,754	155,943	155,705		
NORTH TEXAS:								
K.M.A.	1931	180,000	42,460	137,540	6,346	7,861	S-L	Pa.-Strawn
Subtotal	1931	180,000	42,460	137,540	6,346	7,861		
SOUTHWEST TEXAS:								
Luling-Branyon	1921	106,000	16,485	89,515	1,533	1,405	L	L. Cret.-Edwards
Subtotal		106,000	16,485	89,515	1,533	1,405		
WEST TEXAS:								
Big Lake	1923	120,000	12,196	107,804	1,177	1,279	L	Perm.-Ord.
Cowden, North	1930	175,000	108,461	66,539	8,939	10,098	L	Perm.
Fullerton	1942	450,000	415,294	34,706	13,290	10,930	L	Perm.-Dev.-Ord.
Goldsmith	1934	440,000	357,908	82,092	9,076	8,838	L	Perm.
Hendricks	1926	230,000	17,717	212,283	1,282	1,393	L	Perm.
Howard-Glasscock	1926	200,000	71,062	128,938	5,171	4,993	L	Perm.
Keystone	1930	450,000	399,017	50,983	14,742	15,754	L	Perm.-Ord.
McCamey	1925	115,000	44,039	70,961	3,358	3,281	L	Perm.
McElroy	1926	300,000	124,942	175,058	10,489	9,784	L	Perm.
Seminole	1937	130,000	90,023	39,977	7,316	7,486	L	Perm.
Slaughter	1936	475,000	362,642	112,358	18,485	20,858	L	Perm.
T-X-L	1944	200,000	177,327	22,673	16,768	5,323	L	Perm.-Sil.-Dev.-Ord.
Ward, North, and Estes	1929	120,000	59,422	60,578	3,738	4,328	L	Perm.
Wasson	1936	650,000	500,527	149,473	26,121	21,299	L	Perm.
Yates	1926	750,000	418,175	331,825	16,559	13,555	L	Perm.
Subtotal		4,805,000	3,158,752	1,646,248	156,521	139,199		
TEXAS GULF COAST:								
Agua Dulce to La Gloria	1928	1,250,000	1,114,720	135,280	35,199	23,661	S	Ter.-Olig.
Anahuac	1935	250,000	173,541	76,459	10,693	10,127	S	Ter.-Olig.
Barbers Hill	1916	110,000	24,667	85,333	1,940	1,848	S	Ter.-Olig.-Mio.
Conroe	1931	525,000	275,559	249,441	22,018	20,718	S	Ter.-Eoc.
Hastings	1934	400,000	252,640	147,360	21,391	19,355	S	Ter.-Olig.
Hull	1918	115,000	11,460	103,540	1,281	1,221	S	Ter.-E.O.M.
Humble and Light	1904	138,000	6,484	131,516	759	773	S	Ter.-E.O.M.
Katy	1938	110,000	91,461	18,539	4,674	4,631	S	Ter.-Eoc.
Old Ocean	1934	225,000	188,203	36,797	6,853	6,107	S	Ter.-Olig.
Spindletop	1901	130,000	1,479	128,521	299	223	S	Ter.-Olig.-Mio.
Thompson	1931	225,000	133,575	91,425	11,165	9,361	S	Ter.-Olig.-Mio.
Tom O'Connor	1934	499,000	382,925	116,075	17,737	15,027	S	Ter.-Olig.
Webster (Friendswood)	1937	350,000	245,015	104,985	21,112	18,708	S	Ter.-Eoc.-Olig.
West Columbia	1902	130,000	26,826	103,174	2,349	2,329	S	Ter.-Olig.-Mio.
West Ranch	1938	174,000	126,659	47,341	7,060	7,079	S	Ter.-Olig.
Subtotal		4,631,000	3,055,214	1,575,786	164,520	141,168		
NEW YORK-PENNSYLVANIA:								
Allegany	1879	170,000	45,270	124,730	3,490	3,612	S	Pa.
Bradford	1871	591,000	86,187	504,813	11,612	11,757	S	Pa.
Subtotal		761,000	131,457	629,543	15,102	15,369		
Total major fields		34,180,000	14,580,758	19,599,242	929,880	882,676		
Total U. S. all fields to date		.....	23,737,000	35,211,249	1,896,679	1,748,772		
Major fields' share of total		.....	61.4%	55.7%	49.0%	50.5%		

*Fields with estimated ultimate production of 100 million barrels or more.



REVIEW - FORECAST

PROVEN RESERVES

Total Liquid Proven Reserves Hit Nearly 26 Billion Barrels

by Charles J. Deegan

BOTH the liquid and gaseous hydrocarbon proven reserves of the United States are at an all-time high as 1948 operations get under way. In line with the growing importance of light hydrocarbons, whether in the form of gas or liquid products, The Oil and Gas Journal is presenting, for the first time, its estimate of proven reserves on a comprehensive basis to take in everything from crude oil through natural gas.

Table 1 shows the total liquid hydrocarbon data, as well as the natural figures, and a comparison with the only previous public estimate made on the same over-all basis. Table 2 shows the breakdown by states, with the hydrocarbon reserves classed as "Crude plus Condensate" (comparable with the figures on reserves carried in previous years by the Journal); "Other Natural Gas Liquids," and "Natural Gas."

It is becoming increasingly more difficult and confusing to classify the various liquid hydrocarbons rigidly. There is crude oil; condensate as found in certain fields in increasing number in recent years; the mixture of condensate and gas-cap natural-gasoline content handled by some plants; natural gasoline and other liquids extracted from a gas cap plus dissolved gas; natural gasoline and other liquids extracted from dissolved gas only; or some of the combinations of these from plants connected to pressure-maintenance projects.

The whole situation is in a state of flux. Reservoir engineers are making rapid advances in understanding their underground problems and developing new techniques for handling and controlling the output of fields. Designing engineers are making equally great strides in developing various types of processing and extraction plants for production of light hydrocrabons from gaseous mixtures. The eco-

TABLE 1—PROVEN RESERVES OF LIQUID HYDROCARBONS AND NATURAL GAS IN UNITED STATES

(Thousands of barrels—Trillion cubic feet)

	Jan. 1, 1947*	Jan. 1, 1948	Change
Crude, condensate, and other natural-gas liquids	24,194,587	25,984,000	+1,789,413
Natural gas	160.6	174.3	+13.7

*Not previously estimated on this basis by The Oil and Gas Journal. 1947 figures are A.P.I.-A.G.A. data.

TABLE 2—U. S. LIQUID HYDROCARBON AND NATURAL-GAS RESERVES JANUARY 1, 1948

(Liquids in millions of barrels—Gas in billion cubic feet; at 60° F. and 14.65 psia.)

	A	+ B	= C	D	
	Crude plus condensate	Other natural-gas liquids	Total liquid hydrocarbons	Total natural-gas reserves	Column "A" change from last year*
Texas	13,465	1,300	14,765	95,500	+1,665
California	3,476	200	3,676	10,700	+ 127
Louisiana	1,910	345	2,255	25,300	+ 265
Oklahoma	995	90	1,085	11,700	+ 48
Wyoming	770	30	800	1,500	+ 159
Kansas-Nebraska	625	70	695	14,100	+ 45
New Mexico	540	80	620	6,200	+ 32
Mississippi	490	60	550	2,400	+ 18
Illinois	375	1	376	260	+ 2
Colorado	320	2	322	320	+ 46
Arkansas	260	19	279	875	— 20
Pennsylvania	125	2	127	490	— 12
Michigan	90	1	91	140	+ 21
Montana	83	8	91	850	— 12
New York	61	0	61	62	+ 1
Kentucky-Tenn.	44	17	61	1,350	— 2
W. Virginia-Virginia	34	19	53	1,900	— 2
Indiana	41	1	42	17	+ 6
Ohio	29	2	31	615	+ 5
Alabama	2	0	2	0	— 1
Florida	2	0	2	0	+ 1
Total U. S.	23,737	2,247	25,984	174,279	+2,392

*Comparison is with reserve figures of The Oil and Gas Journal for January 1, 1947.

nomics of the gas industry affect both of these phases. Long-distance transmission lines, seeking the backing of additional reserves of gas, afford a steady market for pressure-maintenance-plant by-product gas from oil and condensate fields, at prices that show an upward trend.

For the current year at least, the Journal's crude-plus-condensate reserve figures include all crude oil, field condensate produced as such, and some cycling-plant output from fields that in the past have been included in our crude reserve figures.

For those who like to convert liquid reserves and gas reserves to a common measurement, one of the ways by which this can be done is to use the engineers standard "fuel oil equivalent," the formula by which gas is converted into a fuel-oil equivalent on the basis of its gross heat content. This method shows the January 1, 1948, gas reserves to be the equivalent of 34,855,800 bbl. of fuel oil.

The standard fuel-oil-equivalent figure is 6,000,000 B.t.u. equals 1 bbl. of fuel oil. Figuring that field gas will run a little rich, or 1,200 B.t.u. per thousand cubic feet, it requires 5,000 cu. ft. of gas to equal 6,000,000 B.t.u.

On this basis the gas reserves are almost 9,000,000,000 bbl. larger than the crude plus other liquid reserves of 25,984,000,000 bbl. This figure would be misleading if taken too literally. It does not take into consideration the efficiency of conversion of gross heat into useful heat by the consumer.

Natural gas is a simpler mixture of hydrocarbon compounds than fuel oil, a vapor instead of a liquid, and therefore capable of being burned with closer pressure-volume control, and more accurate air-mixture adjustment. Consequently to consider the gas reserves in terms of liquid fuel oil; simply for the sake of getting all types of reserves into a common unit of measurement, may result in misleading conclusions. To the consumer, this gas is equivalent to more than 26,000,000,000 bbl. of fuel oil.

Method of Estimating Still Good

The data on the conventional crude oil reserves, including condensate, demonstrate that the industry's time-tested method of maintaining and increasing the reserve inventory is still good. An unprecedented and unexpectedly large demand for crude was met by the greatest drilling campaign, all things considered, in the history of the industry. This included an all-time record-breaking number of wildcat wells.

The result was that the greatest production of crude in history was marketed without damage to the oil reservoirs. The end of the year finds the proven reserves at 23,737,000,000 bbl., an all-time high. The drilling campaign, both field and wildcat, replaced the 1947 production and added another 2,392,000 bbl. to the reserve inventory.

Besides the purely statistical evidence of the reserve situation, there are indications along geological lines that always precede large-scale development campaigns in new areas by from 1 to 5 or more years. There is a definite trend toward large-scale

Table 3—Proven Crude Oil and Condensate Reserves January 1, 1948

(In thousands of barrels)

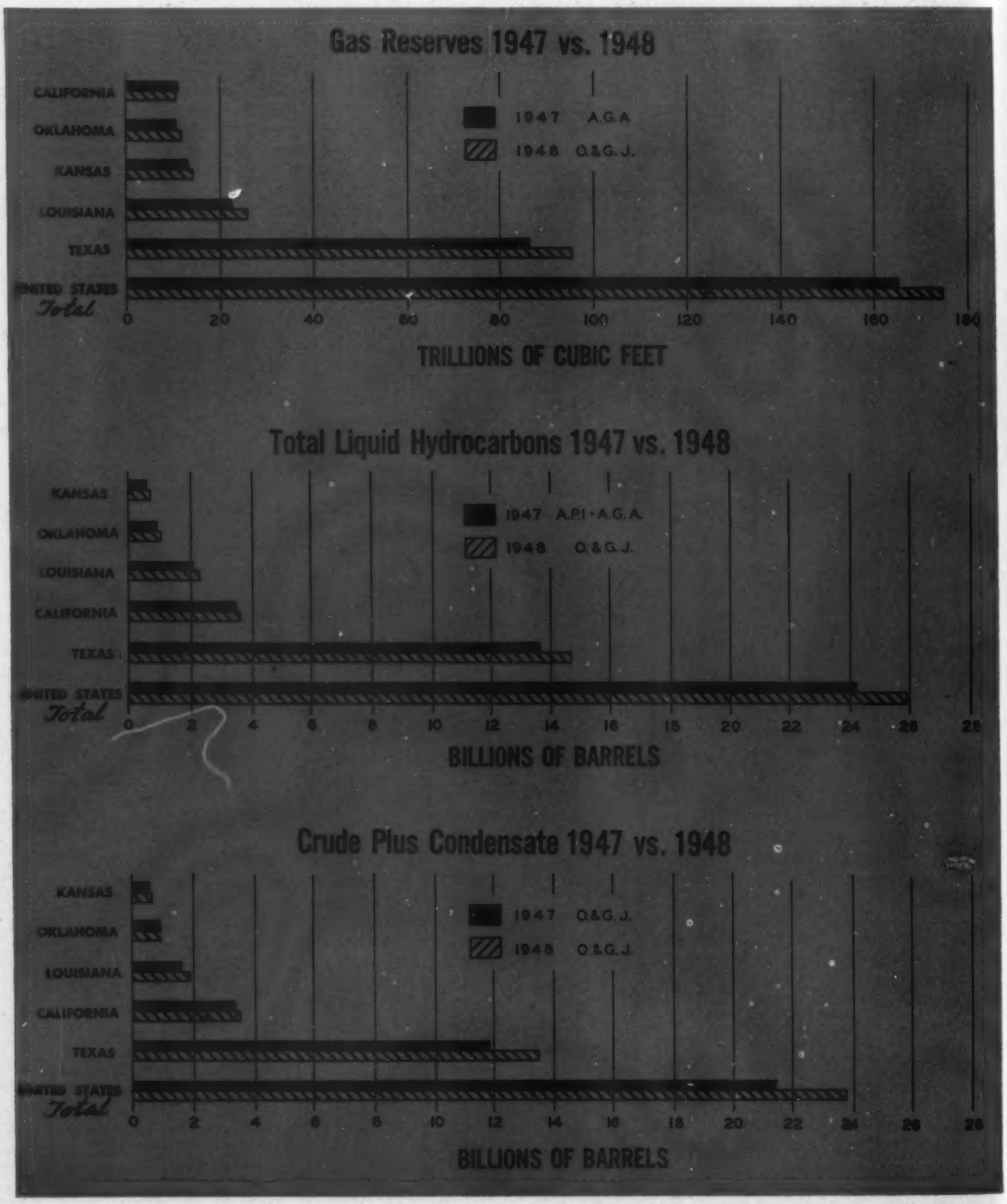
	Estimated reserves as of 1-1-47	1947 discoveries	Extensions and revisions	Total	Less 1947 production	Estimated reserve as of 1-1-48	Change from 1-1-47	Per cent U. S. total
Texas	11,800,162	45,180	2,467,948	14,313,290	848,290	13,465,000	+1,664,838	56.7
Panhandle	338,357	0	33,086	371,443	31,443	340,000	+ 1,643	1.4
West	3,245,845	17,520	1,069,034	4,332,399	220,399	4,112,000	+ 866,155	17.3
North	424,181	6,580	91,652	522,413	62,413	460,000	+ 35,819	1.9
Eastern	3,549,659	2,680	208,996	3,761,335	181,335	3,580,000	+ 30,341	15.1
Southwest	1,617,418	8,200	345,175	1,970,793	102,793	1,868,000	+ 250,582	7.9
Gulf Coast	2,624,702	10,200	720,005	3,354,907	249,907	3,105,000	+ 480,298	13.1
California	3,349,148	19,365	444,228	3,812,741	336,741	3,476,000	+ 126,852	14.6
Southern	1,096,880	9,400	128,535	1,234,819	121,223	1,113,596	+ 16,716	4.7
Coastal	564,894	2,750	87,476	655,120	56,105	599,015	+ 34,121	2.5
Northern	1,687,374	7,300	228,128	1,922,802	159,413	1,763,389	+ 76,015	7.4
Louisiana	1,644,635	9,160	424,676	2,078,471	168,471	1,910,000	+ 265,365	8.0
Northern	407,769	1,880	29,640	439,289	39,289	400,000	— 7,769	1.7
Southern	1,236,866	7,280	395,036	1,639,182	129,182	1,510,000	+ 273,134	6.3
Oklahoma	947,274	64,140	125,680	1,137,094	142,094	995,000	+ 47,726	4.2
Wyoming	611,409	7,040	196,133	814,582	44,582	770,000	+ 158,591	3.2
Kansas-Nebraska	579,746	30,210	119,646	729,602	104,602	625,000	+ 45,254	2.6
New Mexico	507,914	780	72,276	580,970	40,970	540,000	+ 32,086	2.3
Mississippi	472,389	160	52,820	525,369	35,369	490,000	+ 17,611	2.1
Illinois	373,346	10,005	57,107	440,460	65,460	375,000	+ 1,652	1.6
Colorado	272,509	70	63,061	335,640	15,640	320,000	+ 47,491	1.4
Arkansas	279,997	480	9,292	289,769	29,769	260,000	— 19,997	1.1
Pennsylvania	137,042	0	665	137,707	12,707	125,000	— 12,042	0.5
Michigan	69,036	4,000	33,118	106,154	16,154	90,000	+ 20,964	0.4
Montana	95,189	4,160	—7,605	91,744	8,744	83,000	— 12,189	0.4
New York	60,153	0	5,604	65,757	4,757	61,000	+ 847	0.3
Kentucky-Tenn.	46,372	1,225	5,929	53,526	9,526	44,000	— 2,372	0.2
W. Virginia-Va.	35,847	0	815	36,662	2,662	34,000	— 1,847	0.1
Indiana	34,914	2,300	10,199	47,413	6,413	41,000	+ 6,086	0.2
Ohio	23,628	0	8,453	32,081	3,081	29,000	+ 5,372	0.1
Alabama	3,426	0	—1,039	2,387	387	2,000	— 1,426	...
Florida	1,000	0	1,260	2,260	260	2,000	+ 1,000	...
Total U.S.	21,345,138	198,275	4,090,266	25,633,679	1,896,679	23,737,000	+2,391,862	100.0

stepping out into the middle or deeper parts of geological basins where oil has been found around the basin rims at relatively shallow depths. Moreover, whole basins that hitherto have been considered too remote geographically for serious economic consideration, are now being subjected to large-scale, modern-type coordinated exploration programs.

Still another indication is the shortening of the time lag between geophysical and geological field work and the beginning of wildcat drilling in some of the more remote areas. For example, the bulk of the large-scale geophysical exploration of the Powder River basin of northeastern Wyoming has been a postwar development. Yet 1947 saw a wildcat test started in the middle of the basin; testing a promising show at around the 9,000-ft. mark, and then continuing to drill deeper to see what might be found lower down.

Another case is that of the three geological basins that lie around the four-state-corner area of New Mexico, Arizona, Colorado, and Utah. A few years ago the San Juan basin, Black Mesa basin, and Colorado River Salt basin were considered too remote for any particular large-scale economic consideration of their known oil possibilities. The small production in the San Juan basin was considered likely to continue pretty much a local situation maintained on the basis of supplying adjacent, somewhat isolated regional markets.

Today all three are being considered seriously in the exploration plans of many companies, with definite planning for a gas pipe line from the San Juan basin to connect with the big gas line into



California from Texas. The connecting link may not be built for 2 or 3 years, partly on account of the steel shortage. Meantime the exploration and drilling campaign will probably build up reserves ahead of the line construction.

Situation in Various States

Table 4 reveals some interesting facts about the reserves situation in the different states. It shows the relationship of their proven reserves to their 1947 production. Texas, which leads in both reserves and production, has a reserve that is almost 16 times as great as its 1947 withdrawal from proven reservoirs.

California, which is second in both production and size of reserves, has a reserve only 10.3 times its 1947 withdrawal. Moreover, whereas Texas slightly increased its ratio this year, California's ratio dropped a little below that of last year.

These ratios explain why Texas exploration men are optimistic about finding large new fields, while Californians are more pessimistic about their future.

Louisiana and Oklahoma are third and fourth respectively in both production and reserves. Both

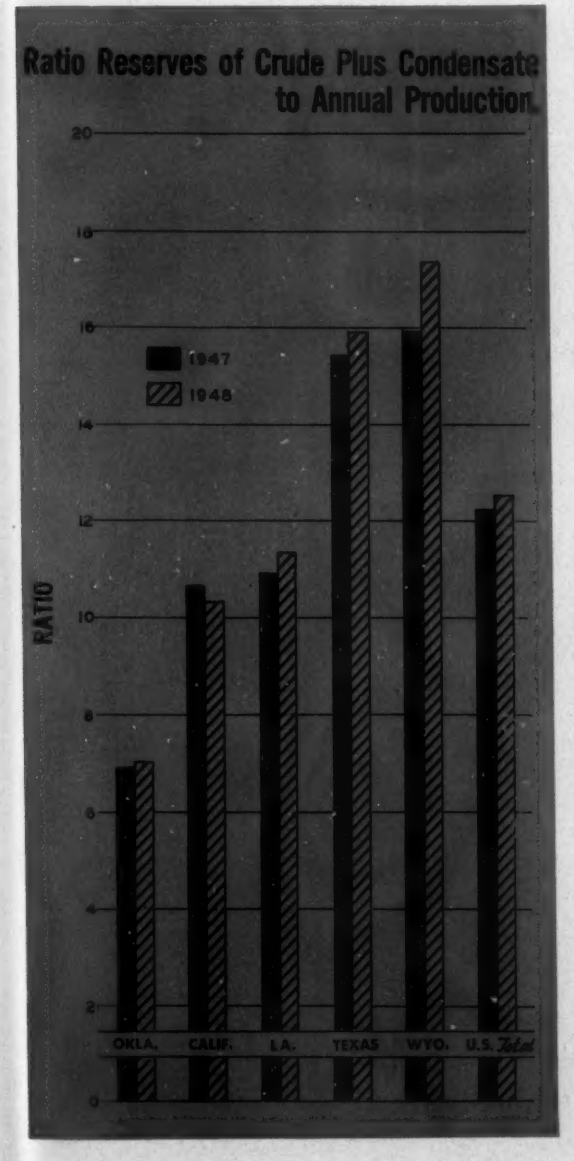


TABLE 4—RATIO OF RESERVES TO PRODUCTION

(Crude plus Condensate)

State—	Jan. 1, 1948	Jan. 1, 1947
Texas	15.9	15.4
California	10.3	10.6
Louisiana	11.3	10.9
Oklahoma	7.0	6.9
Wyoming	17.3	15.9
Kansas	6.0	6.0
New Mexico	13.2	13.8
Mississippi	13.9	19.5
Illinois	5.7	5.0
Colorado	20.5	23.5
Arkansas	8.7	10.0
Pennsylvania	9.8	10.5
Michigan	5.6	4.0
Montana	9.5	10.5
New York	12.8	12.3
Kentucky-Tennessee	4.6	4.2
West Virginia-Virginia	12.8	12.1
Indiana	6.4	5.1
Ohio	9.4	8.2
Total United States	12.5	12.2

increased their ratio of reserves to production in spite of large increases in production during 1947. In both states, exploration men are optimistic about the future prospects.

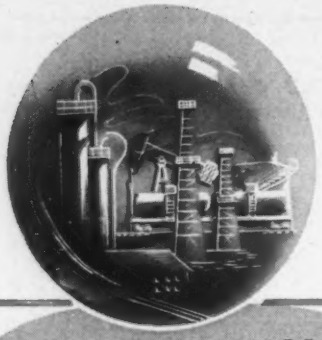
Wyoming, with a very high ratio of 17.3, and this figure representing a sizable jump from the previous year's ratio, is still a different type of state. Here the present is obviously merely the entrance to a much bigger future. The reserves in sight are sufficient to maintain a much larger annual production. With the demands for oil increasing, larger transportation outlets are indicated in the future, to be followed by more development drilling. At that time the ratio is apt to drop a few points to an economic balance point among reserves, production, drilling rate, and transportation outlets.

Older Producing Areas

Kansas, Illinois, Indiana, and Michigan are states where the ratio of reserves to production is only about six. In these states new reserves are constantly being found, but the established production is relatively high, and the type of new reserves found of medium to small caliber. It is still possible to find new reserves but it is a constant scramble to find enough to maintain production rates.

In the old producing areas of Pennsylvania, New York, and West Virginia where very little new reserves are being found, the ratio of production to reserves goes up to 10 or better. Apparently here the rate at which the old fields will yield current production is the controlling factor.

There seems to be a mixture of conditions, partly natural and partly economic, which control the ratio of reserves to production. In the states where new reserves are seldom found, the reserve ratio settles around the natural rate at which the reservoirs will yield the oil. In the state where large additions to reserves are being made, the ratio settles at some point determined by the economics of situation.



REVIEW - FORECAST

VOLUMETRIC OUTLOOK

Demands for Petroleum and Products Will Average 6,152,000 Bbl. Daily

*by E. T. Knight**

THE projected demands for petroleum products in the United States for the year 1948, here presented, are based on certain trends established during recent years and which have increased the 1947 demands to unprecedented levels.

Those trends, which were not given sufficient consideration in previous forecasts, are:

1. Desire of the American public to employ greater quantities of kerosine and distillate fuels for heating purposes.

2. Growth in the use of diesel-powered installations both by transportation facilities and industrial plants.

3. Requirements placed on the oil industry to supply greater amounts of petroleum and products to the military forces and foreign consumers.

The forecasts of demands for petroleum products consider that during the coming months the oil industry will find solutions to its current operating difficulties and that transportation bottlenecks will be widened sufficiently to permit nearly all petroleum requirements to be met.

Any delay in the programs of expansion and acquisition of new productive facilities will, of course, alter somewhat the projections here presented.

It is here forecast that demands for petroleum and products during 1948 will average 6,152,000 bbl. daily, of which 5,728,000 bbl. daily will be consumed in the continental United States and 424,000 bbl. daily will be exported.

The total demands will be 5.3 per cent greater than the 1947 consumption; domestic consumption will be 6.2 per cent greater, while exports will average 6.1 per cent less than those of 1947.

Imports of crude and products into the United States during 1948 will be markedly greater than those indicated for 1947. It is expected that 499,000 bbl. daily will be brought into the country in 1948, 13.2 per cent more than the 440,000 bbl. daily estimated to have been imported in 1947.

This forecast also considers that the 1948 supply of natural gasoline and related products will approximate 403,000 bbl. daily and will exceed 1947 production of 355,020 bbl. daily by 13.4 per cent. An increase of this magnitude is expected to result from a continuation of the growth in the rate of supply of this product recorded during the latter months of 1947.

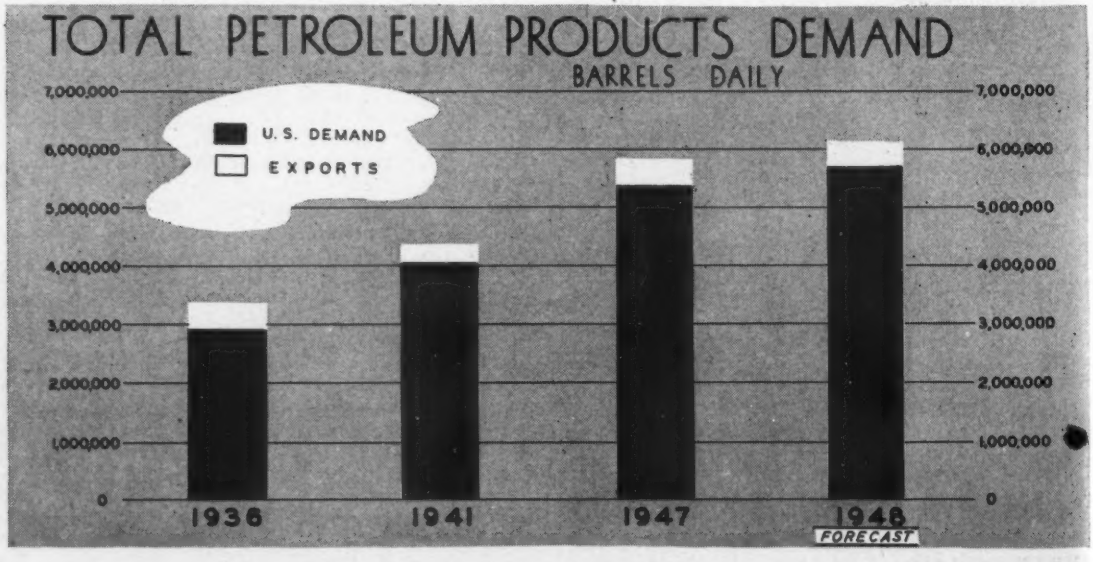
If the forecasts presented above are realized, the production branch of the oil industry will be required to produce 5,280,000 bbl. of crude oil daily during 1948. Production of our crude oil reserves at that rate will be 213,900 bbl. daily, or 4.2 per cent greater than the indicated production rate for 1947.

To produce crude oil during 1948 at the rate indicated as necessary to meet all the expected demands will require full operation of the industry's productive capacities and the further development of new fields found during the last 2 years.

Refineries in the United States will be required to process 5,346,000 bbl. of crude oil daily during 1948, if the industry is to meet the demands as here forecast. Operation at this rate will be 5.8 per cent greater than the 1947 rate of operation when approximately 5,054,000 bbl. a day of crude oil were processed.

The forecasts of demands for specific petroleum

*Petroleum economist, The Atlantic Refining Co.



Demand and Supply of Petroleum Products

(Barrels daily)

	1947* Quantity	1947* % increase over 1946	1947* % of 1941	1948 forecast Quantity	1948 forecast % increase over 1947
Motor fuel	2,296,890	7.5	120.7	2,456,520	6.9
Domestic	2,167,040	7.6	118.5	2,328,250	7.4
Export	129,850	4.4	175.0	128,270	—1.2
Kerosine	297,030	10.9	148.8	320,970	8.1
Domestic	274,950	12.6	144.1	296,480	7.8
Export	22,080	—5.8	250.1	24,490	10.9
Distillate fuel	876,520	17.5	168.6	937,640	7.0
Domestic	795,410	19.5	168.0	872,380	9.7
Export	81,110	0.9	174.9	65,260	—19.5
Residual fuel	1,437,960	7.9	132.0	1,485,660	3.3
Domestic	1,407,800	7.6	134.0	1,459,350	3.7
Export	30,160	16.0	78.0	26,310	—12.8
Lubricants	140,620	11.7	127.7	150,440	7.0
Domestic	99,840	4.5	120.4	107,930	8.1
Export	40,780	34.6	150.0	42,510	4.2
Wax	9,770	19.3	135.5	10,150	3.9
Domestic	7,020	12.9	136.8	7,640	8.8
Export	2,750	39.6	132.2	2,510	—8.7
Asphalt and road oil, domestic	147,810	9.1	121.3	154,370	4.4
L.P.G. domestic (incl. L.R.G.)	145,200	39.5	481.0	171,150	17.9
Miscellaneous and losses	306,080	—0.9	118.0	285,780	—6.6
Domestic	285,740	—2.4	114.5	270,780	—5.2
Export	20,340	26.0	208.2	15,000	—26.3
Crude oil	186,370	21.2	144.4	180,000	—3.4
Domestic (as such and loss)	61,500	46.1	162.0	60,000	—2.4
Export	124,870	11.9	137.1	120,000	—3.9
Demand for all oils	5,844,250	9.8	133.8	6,152,680	5.3
Domestic	5,392,310	9.9	132.5	5,728,330	6.2
Export	451,940	9.1	151.6	424,350	—6.1
Stock changes: Crude	+18,160	....	....	.....	....
Products	+ 1,130	....	....	+30,180	....
Total new supply	5,863,540	7.8	135.1	6,182,860	5.4
Imports	440,620	19.1	165.6	498,780	13.2
Crude	271,330	15.1	195.7	316,300	16.6
Products	169,290	26.2	132.8	182,480	7.8
Domestic supply	5,422,920	7.0	133.2	5,684,080	4.8
Other supply: Nat. gaso., etc.	355,020	12.5	160.3	402,580	13.4
Benzol	1,890	—66.7	20.0	1,600	—15.3
Crude production	5,066,010	6.7	131.9	5,279,900	4.2
Crude run to stills	5,053,870	6.6	130.9	5,346,420	5.8

*Fourth quarter estimated.

products for the year 1948 by domestic and foreign consumers are presented in Table 1, which compares those data with the calculated comparable figures for 1947.

Table 2 presents the 1948 demands as forecast by quarterly periods and relates those projections to the comparable 1947 rates of consumption.

Tables 1 and 2 also indicate the rates of supply of crude and products required to meet the demands indicated.

MOTOR FUEL.—A total demand for motor fuel of 2,457,000 bbl. daily is expected during 1948. That rate of demand will be 6.9 per cent greater than the comparable 1947 consumption of 2,297,000 bbl daily.

Domestic consumption of motor fuel is expected to average 2,328,000 bbl. daily during 1948, an amount 7.4 per cent greater than 1947 consumption.

Factors which have resulted in the increase in rates of consumption of motor fuel in the United States are:

1. Extended use of registered vehicles because of:
   a. Higher rates of per capita income, and
   b. More leisure time for car owners.
2. Increase in the registration of motor vehicles.

The above and other factors influencing the more intensive use of registered passenger cars are presented in Table 3.

Domestic requirements for motor fuel for 1948 were forecast on the basis of the aforementioned trends in operation of passenger cars and upon the indicated trends in demands by other classes of motor-fuel consumers. These forecasts are presented in detail in Table 4 and are compared with similar data for 1941 and 1947.

Demand and Supply of Petroleum Products 1948 Quarterly Forecast

(Barrels daily)

	First quarter	% increase over 1947	Second quarter	% increase over 1947	Third quarter	% increase over 1947	Fourth quarter	% increase over 1947*
Motor fuel	2,124,440	6.0	2,563,790	7.3	2,688,830	8.2	2,446,570	6.2
Domestic	1,981,110	6.4	2,428,790	7.5	2,563,830	8.7	2,336,570	7.0
Export	143,330	0.5	135,000	3.6	125,000	—1.4	110,000	—8.3
Kerosine	424,480	7.9	262,580	8.5	224,560	8.7	372,760	7.2
Domestic	400,000	9.3	238,080	8.0	199,560	5.7	348,760	7.0
Export	24,480	—10.8	24,500	14.2	25,000	40.6	24,000	10.4
Distillate fuel	1,225,000	11.1	761,740	5.8	663,040	—1.7	1,072,300	8.8
Domestic	1,200,000	12.2	695,800	10.0	593,040	5.2	1,002,300	8.9
Export	55,000	—8.7	65,940	—24.8	70,000	—36.2	70,000	7.3
Residual fuel	1,561,110	0.2	1,434,070	5.7	1,367,280	1.6	1,580,440	5.7
Domestic	1,533,330	0.4	1,406,600	6.3	1,342,290	2.1	1,555,440	6.0
Export	27,780	—7.1	27,470	—16.6	25,000	—18.4	25,000	—8.0
Lubricants	140,000	3.8	151,810	5.8	157,700	15.0	151,720	3.5
Domestic	100,440	5.6	109,310	10.0	112,700	11.8	109,220	5.0
Export	40,000	—0.5	42,500	—3.6	45,000	23.8	42,500	0.0
Wax	10,140	0.6	10,050	1.9	10,050	9.0	10,350	4.2
Domestic	7,760	10.1	7,500	5.0	7,500	19.2	7,800	2.6
Export	2,380	—21.5	2,550	—6.2	2,550	—13.0	2,550	9.4
(Quarterly demand for asphalt and road oil included in miscellaneous demands below)								
Asphalt and road oil, domestic	180,000	14.9	150,000	21.6	160,500	21.8	194,000	11.6
L.P.G. domestic (including L.R.G.)	405,000	6.8	470,000	1.2	459,500	—2.0	426,000	2.9
Miscellaneous and losses	390,000	8.5	455,000	4.0	444,500	—1.0	411,000	3.0
Domestic	15,000	—27.8	15,000	—12.2	15,000	—24.5	15,000	0.0
Export	170,000	12.5	190,000	—1.7	190,000	—13.3	170,000	0.0
Crude oil	60,000	10.9	60,000	5.0	60,000	—18.3	60,000	20.0
Domestic (as such and loss)	110,000	13.3	130,000	—4.5	130,000	—10.8	110,000	—9.3
Export	6,270,610	6.0	5,994,040	6.2	5,921,470	2.7	6,424,140	6.0
Demand for all oils	5,852,640	6.5	5,551,080	7.6	5,483,920	4.0	6,025,090	6.9
Domestic	417,970	—0.8	442,960	—8.0	437,550	—10.9	399,050	—3.6
Export	+100,000		—20,000		—80,000		.....	.....
Stock changes: Crude	—310,000		+220,000		+400,000		—190,000	.....
Products	6,060,610	7.6	6,194,040	6.6	6,241,470	5.0	6,234,140	2.8
Total new supply	480,000	—0.5	505,000	18.3	495,000	24.6	515,000	12.8
Imports	290,000	2.5	325,000	25.3	325,000	23.6	325,000	16.1
Crude	190,000	—4.7	180,000	7.4	170,000	26.6	190,000	7.6
Products	5,580,610	8.4	5,689,040	5.7	5,746,470	3.6	5,719,140	2.0
Domestic supply	380,000	9.0	400,000	15.4	410,000	13.5	420,000	15.6
Other supply: Nat. gaso., etc.	1,600	—40.1	1,600	—3.0	1,600	—1.8	1,600	—0.6
Benzol	5,199,010	8.4	5,287,440	5.0	5,334,870	2.9	5,297,540	1.1
Crude production	5,149,010	7.3	5,372,440	9.1	5,479,870	4.0	5,382,540	3.2
Crude run to stills								

*Fourth quarter 1947 estimated.

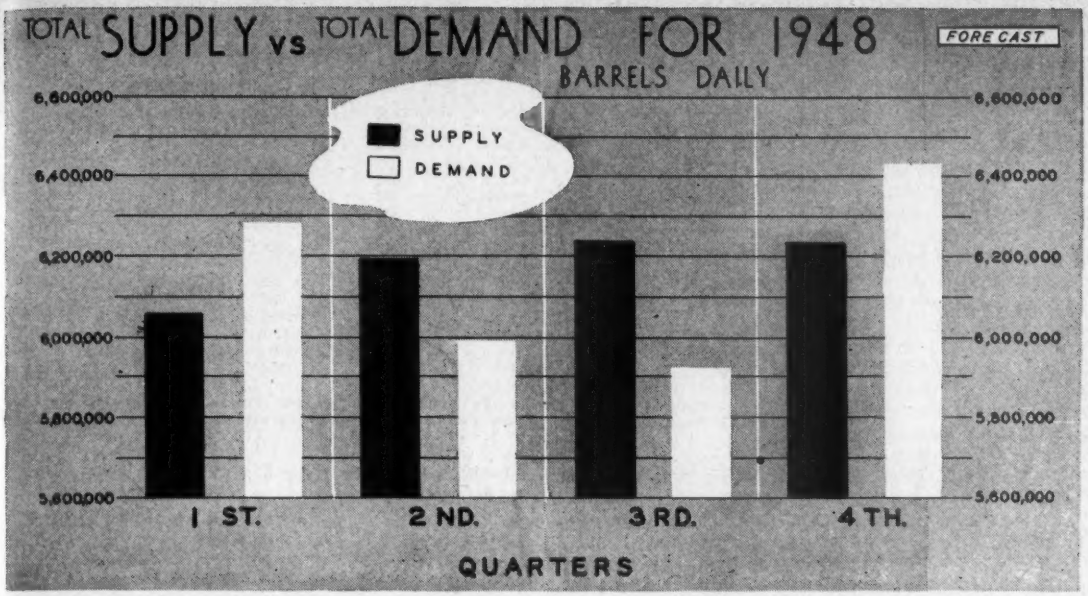


TABLE 3—INDEXES OF PASSENGER CAR USE

	Per capita income		Passenger cars in use	Passenger cars per capita	Annual mileage per passenger car
	Absolute dollars	1935-39 dollars			
1935-39	100	100	100	100	100
1941	144	137	117	113	111
1947*	260	167	120	108	115
1948	273	170	128	115	117

*Partially estimated.

TABLE 4—DOMESTIC CONSUMPTION OF MOTOR FUEL
(Barrels daily)

Classes of consumers—	1941	1947†	1948
Passenger cars	1,196,170	1,274,080	1,372,460
Trucks and buses	398,360	518,470	521,100
Aviation	30,140	68,490	98,360
Agriculture*	83,790	160,040	172,130
Industrial and misc.	120,320	145,960	164,200
Total	1,828,780	2,167,040	2,328,250

*Other than highway use. †Estimated.

As indicated in Table 4 the requirements of the passenger cars in use increased 77,910 bbl. daily from 1941 to 1947. It has been calculated that 30,210 bbl. daily of the total increase resulted from an expansion in the number of passenger vehicles in operation and the balance, or 47,700 bbl. daily, resulted from an increase in the extent to which those cars were operated.

It has been calculated that the increase from 1941 to 1947 in the number of trucks and buses in operation increased

TABLE 5—PASSENGER CARS IN UNITED STATES
(In thousands)

	Registration end of year	Factory sales domestic market	Units scrapped	Vehicles exempt from registration end of year	Average in use
1936	24,162	.....	.....	.....	.....
1937	25,477	3,643	2,250	76	24,896
1938	25,265	1,811	2,010	91	25,454
1939	26,148	2,702	1,823	87	25,795
1940	27,240	3,608	2,501	102	26,788
1941	29,240	3,682	1,678	106	28,344
1942	27,684	218	1,737	141	28,585
1943	25,841	.....	1,841	142	26,904
1944	25,299	.....	539	148	25,714
1945	25,399	68	†—23	152	25,498
1946	27,729	2,004	†—316	152	26,712
1947*	30,100	3,750	†1,379	150	29,065
1948	32,000	3,900	2,000	150	31,200

*Estimated. †Considers the surplus vehicles that entered the domestic market and those units which became operative after dead storage during the emergency.

the rate of consumption of those units 108,410 bbl. daily, and the greater use of those units increased the rate of consumption 11,700 bbl. daily.

The increase in rates of consumption by other classes of consumers resulted from a general increase in business and greater employment of gasoline consuming units.

It is expected that during 1948 the number of passenger cars in use will average 31,200,000, about 2,135,000, or 7.5 per cent more than the average indicated for 1947. This forecast was based upon the historic and recent trends in production, scrappage, and registration presented in Table 5.

Forecast and historic data for trucks and buses are shown in Table 6.

TABLE 6—TRUCKS AND BUSES
(In thousands)

	Registration end of year	Factory sales domestic market	Units scrapped	Vehicles exempt from registration end of year	Average in use
1936	3,930	.....	.....	.....	.....
1937	4,173	690	252	195	4,249
1938	4,154	352	358	208	4,365
1939	4,497	559	196	228	4,543
1940	4,683	600	393	249	4,828
1941	4,912	749	559	210	5,027
1942	4,741	164	266	279	5,071
1943	4,658	23	139	247	4,961
1944	4,812	102	148	247	4,882
1945	5,025	254	†—56	245	5,065
1946	5,801	752	†144	250	5,661
1947*	6,490	1,000	†312	250	6,396
1948	6,590	750	650	250	6,790

*Estimated. †Considers the surplus vehicles that entered the domestic market and those units which became operative after dead storage during the emergency.

MIDDLE DISTILLATES.—The combined domestic and export demands for middle distillates (kerosine and distillate fuels) are expected to be 7.1 per cent greater in 1948 than the estimated comparable demands in 1947. During 1947 the demands for these products were 65.4 per cent greater than those of 1941.

The domestic demands for middle distillates during 1948 may be expected to be 9.2 per cent greater than the estimated 1947 domestic demands.

Table 7 indicates the historic, current, and projected demands for middle distillates by classes of consumers. The segments of the middle distillate consumption are indicated in Table 8 in order that the demands for specific products may be compared with demands as reported by various agencies.

Of particular interest to the oil industry is the

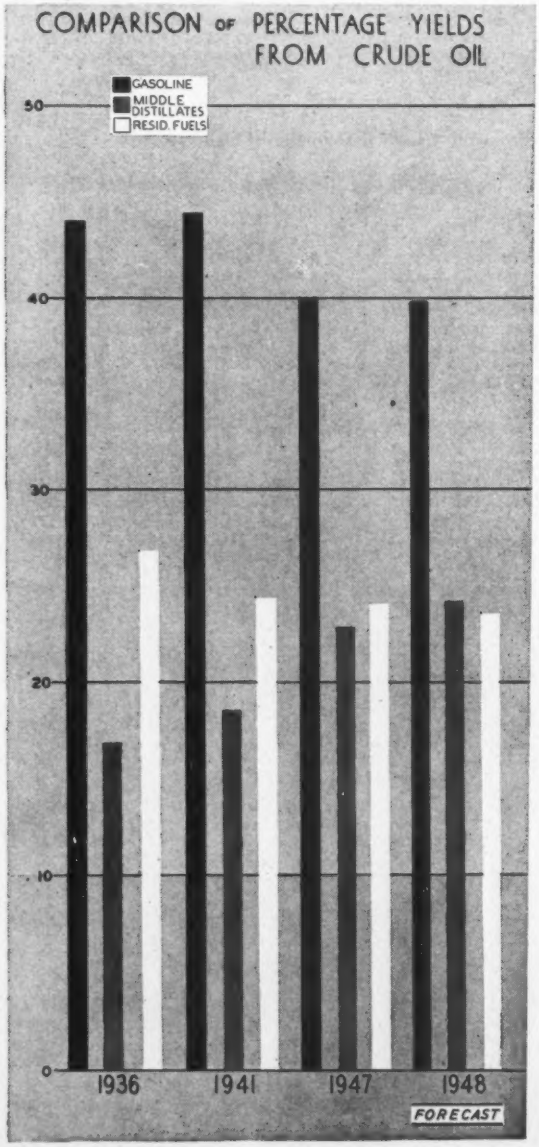
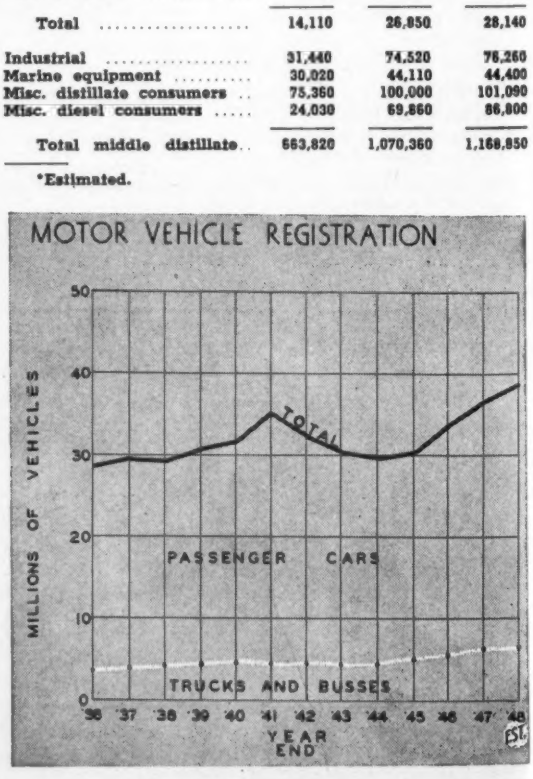
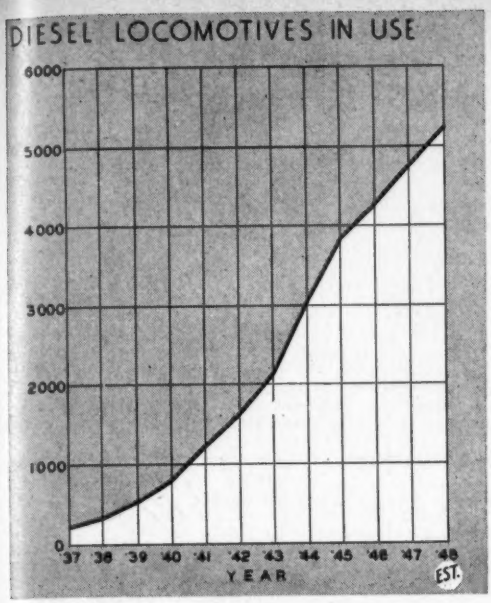


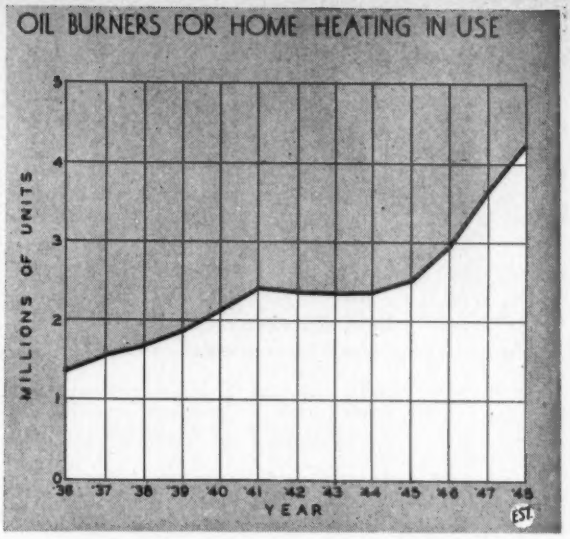
TABLE 7—DOMESTIC CONSUMPTION OF MIDDLE DISTILLATES
(Barrels daily)

Classes of consumers—	1941	1947*	1948
Range oils	126,330	198,900	225,250
Home heating	331,260	465,430	505,460
Tractor fuels	17,720	37,810	39,980
Railroads:			
Distillate fuels	6,010	6,300	6,280
Diesel fuels	7,540	46,580	55,190
Total	13,550	52,880	61,470
Public utilities:			
Distillate fuels	9,130	14,520	15,030
Diesel fuels	4,980	12,330	13,110
Total	14,110	26,850	28,140
Industrial	31,440	74,520	76,260
Marine equipment	30,020	44,110	44,400
Misc. distillate consumers	75,360	100,000	101,090
Misc. diesel consumers	24,030	69,860	86,800
Total middle distillate	663,820	1,070,360	1,168,850

*Estimated.







increase in demand for diesel fuel. The 1947 demand for diesel fuel is calculated to have been 158 per cent greater than the 1941 consumption. It is here projected that the 1948 demand for diesel fuel will be 14.5 per cent greater than the 1947 consumption.

The growth in consumption of this product results in part from increased use of diesel engines by the nation's railways. Diesel engines employed for motive power by the nation's Class 1 railroads in 1947 were 22 times those used in 1937 and were equal to 10.8 per cent of total engines in operation. In 1937 the 218 diesel electric engines used by the railroads were less than 0.5 per cent of total engines in operation. The growth and relative use of diesel electric engines during the last 10 years are shown in Table 9.

The use of distillate fuels for the heating of homes in 1948 is projected to be nearly 8.6 per cent greater than during 1947. The increase is expected to result from the number of new oil burners installed during the latter part of 1947 and to be installed throughout the year 1948.

The historic trend in the use of oil burners for the heating of homes, along with a forecast of installations during 1948, is shown in Table 10.

The growth in demand for middle distillates has been augmented by still another factor—the increased use of oil-burning space heaters. Measurement of the demand for heating oils for use in these heaters is now somewhat speculative since no authoritative data are available which indicate the extent to which these units are currently being employed. However, statistics presented in Table 11 indicate that this type of consumption has grown markedly during recent years and may be expected to be an important factor during 1948.

RESIDUAL FUELS.—The total demand for residual fuels is projected to be 3.3 per cent greater in 1948 than it was in 1947 when demand for this fuel was 7.9 per cent over that of 1946.

The domestic demand, projected to be 1,459,350 bbl. daily in 1948, will be 3.7 per cent greater than the 1,407,800 bbl. daily consumed in 1947.

The historic, current, and forecast consumption of residual fuels by categories of users is presented in Table 12.

LUBRICATING OILS.—The 1948 domestic consumption of lubricants by industry and automotive units, together with the comparable demands for 1941 and 1947, is presented in Table 13.

It is expected that the relationship of motor-oil consumption to motor-fuel consumption in 1948 will

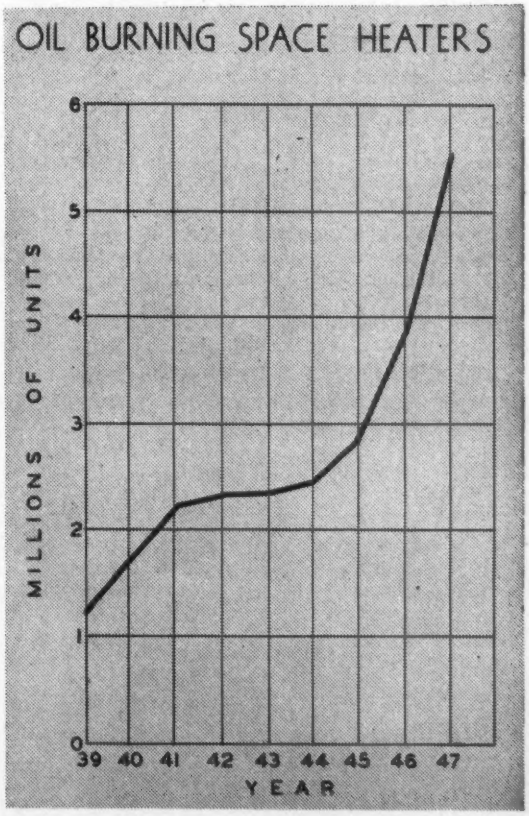
TABLE 8—COMPONENT PARTS OF MIDDLE DISTILLATE DEMANDS
(Barrels daily)

	1941	1947*	1948
Kerosine	190,330	274,950	296,480
Distillate fuels	398,560	602,260	651,180
Diesel fuels	74,930	193,150	221,200
Total	663,820	1,070,360	1,168,860

TABLE 9—LOCOMOTIVES IN USE—CLASS 1 RAILWAYS

	Total locomotives	Diesel electric	Index 1937 = 100	Per cent of total
1937	44,683	218	100	0.49
1938	43,810	320	147	0.73
1939	42,511	525	241	1.23
1940	41,721	797	365	1.91
1941	41,771	1,267	582	3.04
1942	42,033	1,667	764	4.95
1943	42,731	2,125	975	4.98
1944	43,613	3,050	1,400	7.00
1945	43,530	3,816	1,750	8.78
1946	42,799	*4,291	1,970	10.04
1947*	44,126	4,766	2,190	10.80
1948	43,807	5,241	2,450	12.00

*Estimated.



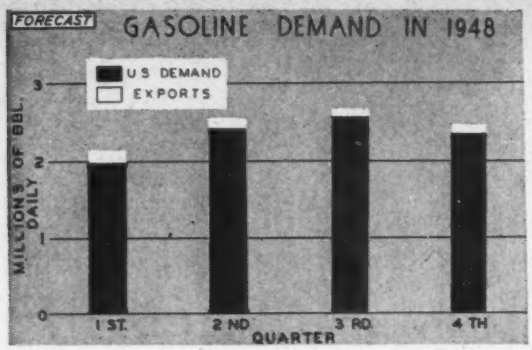


TABLE 10—OIL BURNERS FOR HOME HEATING
(In thousands)

	In use end of year	Domestic sales	Scrappage	Average in use
1936	1,341	....	....	....
1937	1,531	211	21	1,436
1938	1,668	179	42	1,599
1939	1,862	236	42	1,765
1940	2,135	302	29	1,999
1941	2,402	333	66	2,269
1942	2,386	100	†116	2,394
1943	2,375	33	44	2,381
1944	2,392	50	33	2,384
1945	2,526	146	12	2,459
1946	2,937	455	44	2,731
1947*	3,650	800	87	3,294
1948	4,230	700	120	3,940

*Estimated. †Considers all burners not in use as scrapped. However, many burners so indicated were returned to use after the emergency which resulted in a relatively low net scrapping rate in subsequent years.

be equal to that of 1947. Although new vehicles registered using less oil will comprise a greater portion of total registrations, it is expected that the consumption of motor oil relative to motor fuel in the older cars will be somewhat greater than in previous years.

It is also expected that the consumption of industrial oil will increase at a rate less rapid than the increase in industrial production.

LIQUEFIED PETROLEUM GASES (Including L. R. G.).—It is forecast that the consumption of this product in 1948 will be 17.9 per cent greater than the indicated consumption during 1947. The demand during 1947 was 4.8 times as great as it was in 1941. The increase from 1941 to 1947 was 381 per cent or 115,010 bbl. daily.

The 1947 demand for this product was 2.69 per cent of the total domestic demand for all oils as compared to a 0.7 per cent position in 1941. The increase in domestic demand for this product was equal to 8.8 per cent of the total increase in domestic demands for all products of 1,311,950 bbl. per day from 1941 to 1947.

The increase in demand for liquefied gases from 1947 to 1948 is forecast to be 25,950 bbl. daily.

Table 14 presents the historic, current, and forecast consumption of this product by various categories of users.

The historic and forecast relative importance of the domestic demand for all petroleum products is presented in Table 15.

TABLE 11—OIL-BURNING SPACE HEATERS

	Production of units	Units in operation
1939	.....	*1,220,243
1940	500,000	1,720,243
1941	500,000	2,220,243
1942	96,000	2,316,243
1943	46,800	2,363,043
1944	126,865	2,489,908
1945	360,607	2,850,515
1946	1,005,312	3,855,827
1947	‡1,600,000	†5,455,827

*Sixteenth census, indicating characteristics of Housing 1939. †Does not consider the number of units that have been scrapped during the interval indicated. Actual units in operation may be somewhat lower in most recent years. ‡Based upon first 6 months' data and estimates of rates of operation during succeeding months.

TABLE 12—DOMESTIC CONSUMPTION OF RESIDUAL FUEL
(Barrels daily)

Classes of consumers—	1941	1947*	1948
Commercial heating	127,690	153,420	169,400
Railroads	220,730	267,670	262,330
Public utilities	92,120	180,550	138,530
Industrial	362,200	426,850	428,960
Marine equipment	155,280	254,790	256,830
Miscellaneous	92,450	124,520	153,330
Total	1,050,470	1,407,800	1,459,350

*Estimated.

TABLE 13—DOMESTIC CONSUMPTION OF LUBRICANTS
(Barrels daily)

	1941	1947*	1948
Motor oil	41,300	51,840	56,010
Industrial lubricants	41,590	48,000	51,920
Total	82,890	99,840	107,930

*Estimated.

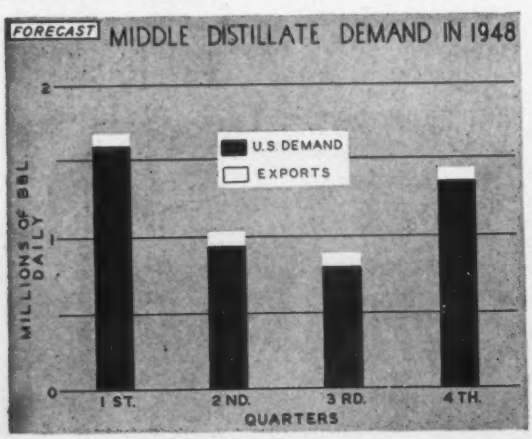
TABLE 14—DOMESTIC CONSUMPTION OF LIQUEFIED PETROLEUM GASES*
(Barrels daily)

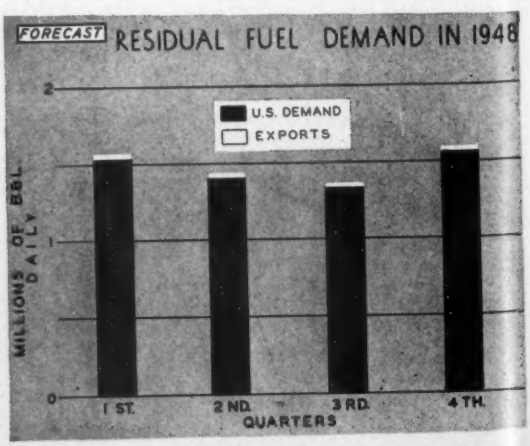
	1941	1941= 100	1947*	1941= 100	1948	1941= 100
Chemical industry	2,880	100	21,680	753	23,940	830
Fuels	25,200	100	109,590	435	132,800	527
All others	2,110	100	13,930	660	14,410	685
Total	30,190	100	145,200	481	171,150	567

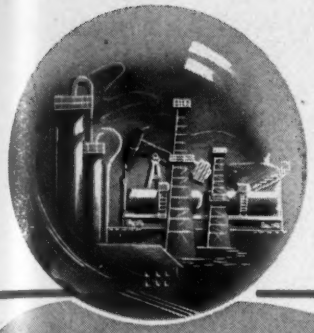
*Includes liquefied refinery gases.

TABLE 15—DOMESTIC DEMANDS FOR SPECIFIC PETROLEUM PRODUCTS AS PER CENT OF TOTAL DOMESTIC CONSUMPTION

	1941	1947	1948
Motor fuel	44.92%	40.19%	40.64%
Middle distillates	16.31	19.85	20.40
Residual fuel	25.81	26.11	25.48
Lubricants and wax	2.16	1.98	2.02
Liquefied Petroleum gases (incl. L.R.G.)	0.74	2.69	2.99
Misc. and losses	10.06	9.18	8.47
Total	100.00	100.00	100.00







REVIEW - FORECAST

LIGHT HYDROCARBONS

Natural-Gasoline and Cycling Plants Will Break Own Record in 1948

by John C. Casper

NATURAL-GASOLINE and cycling plants set a new production record of approximately 15,030,000 gal. daily in 1947. A still-higher record will be established in 1948 because of the rapidly increasing demand for liquefied petroleum gases and the pressure for conservation of natural gas. The forecast of light hydrocarbon production by natural-gasoline and cycling plants is 16,800,000 gal. daily.

While all phases of production and demand records in the petroleum industry in recent years have been impressive, percentage increases in the production of light hydrocarbons have led the field. Crude production in the United States increased about 25 per cent from 1941 through 1947 but light-hydrocarbon output jumped more than 60 per cent in the same period.

In this light-hydrocarbon picture of conspicuous growth, the increased production of liquefied petroleum gases stands out as the major contributing factor. The 1947 output of L.P.G. was 280 per cent greater than in 1941; 5,038,000 gal. daily compared with 1,316,000 gal. This is the production at natural-gasoline and cycling plants only, and does not include any liquefied gases produced in regular crude-oil refineries. The increases in plant production of natural gasoline and other miscellaneous products were comparable with the increases in crude production—about 25 per cent over 1941.

The Bureau of Mines reports a 33.8 per cent increase in the domestic demand for all liquefied petroleum gases in the first 10 months of 1947 over the same period in 1946. This includes liquefied gases from refineries, as well as natural-gasoline and cycling plant production. The actual comparative figures were 5,664,000 and 4,232,000 gal. daily.

The actual or consumption demand was not equal to the potential demand. The public would have consumed still greater quantities if the supplies and equipment to consume them had been available.

Three limiting factors affected the situation throughout 1947 and will likely continue to be felt through 1948. These are (1) the lack of material for rapid expansion of L.P.G. production, (2) the shortage of transportation facilities, and (3) the less-important shortage of L.P.G. appliances.

Even though the construction of new gas-treating plants has been an outstanding feature of the year's development, the producers have not been able to keep place with the rapidly increasing demand.

Pressure tank cars have been in short supply since early in the war period and will probably continue as a disturbing factor in L.P.G. distribution in 1948. One dry-cargo vessel was converted to a pressure-tank vessel in 1947 and will be used prin-

PRODUCTION OF NATURAL AND CYCLE PRODUCTS BY STATES
(Thousands of gallons)

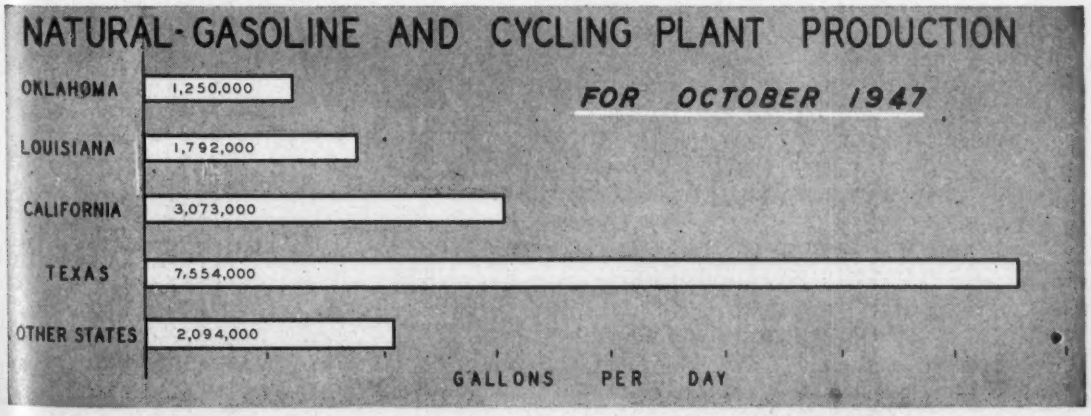
	Texas	California	Louisiana	Oklahoma	Other	Total
1941	4,272	1,807	618	1,242	1,365	9,304
1942	4,295	1,735	811	1,219	1,527	9,587
1943	4,510	1,899	839	1,157	1,688	10,093
1944	5,108	2,107	1,346	1,152	1,767	11,480
1945	5,995	2,443	1,505	1,140	1,805	12,888
1946	6,227	2,494	1,554	1,148	1,827	13,250
*1947	7,074	2,888	1,684	1,203	2,043	14,892

*Average for 10 months.

PRODUCTION BY NATURAL-GASOLINE AND CYCLING PLANTS*
(Thousands of gallons)

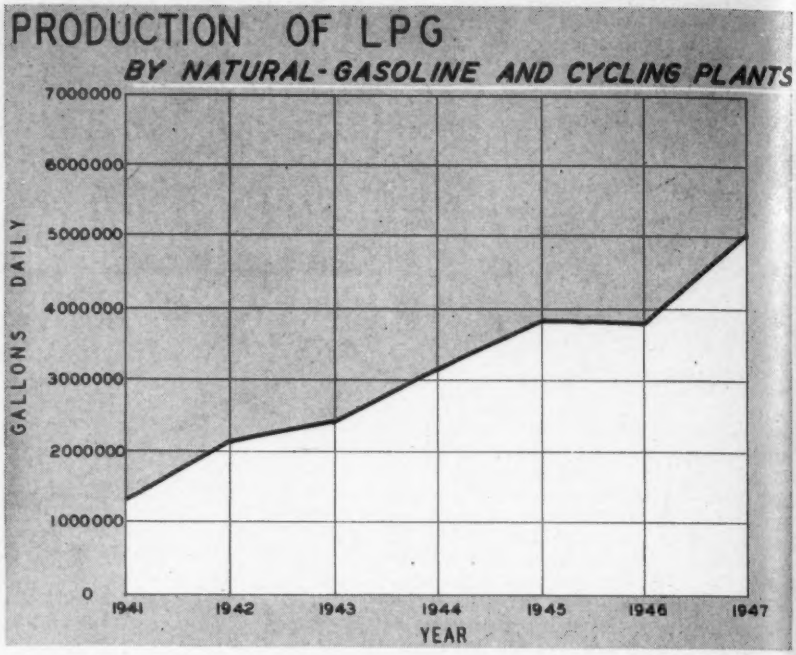
Year	Natural gasoline	L.P.G.	Other products	Total	L.P.G. per cent of total
1941	6,050	1,316	1,938	9,304	14.2
1942	5,674	2,119	1,794	9,587	21.1
1943	5,796	2,495	1,802	10,093	24.7
1944	5,979	3,198	2,303	11,480	27.8
1945	6,846	3,872	2,170	12,888	30.0
1946	7,535	3,838	1,877	13,250	29.0
†1947	7,562	5,038	2,430	15,030	33.5

*Bureau of Mines. †Ten months actual, two months estimated.



cipally for moving propane to the east coast area, relieving some tank cars for shorter hauls. The production of consuming appliances was more nearly in balance with demand at the beginning of the new year.

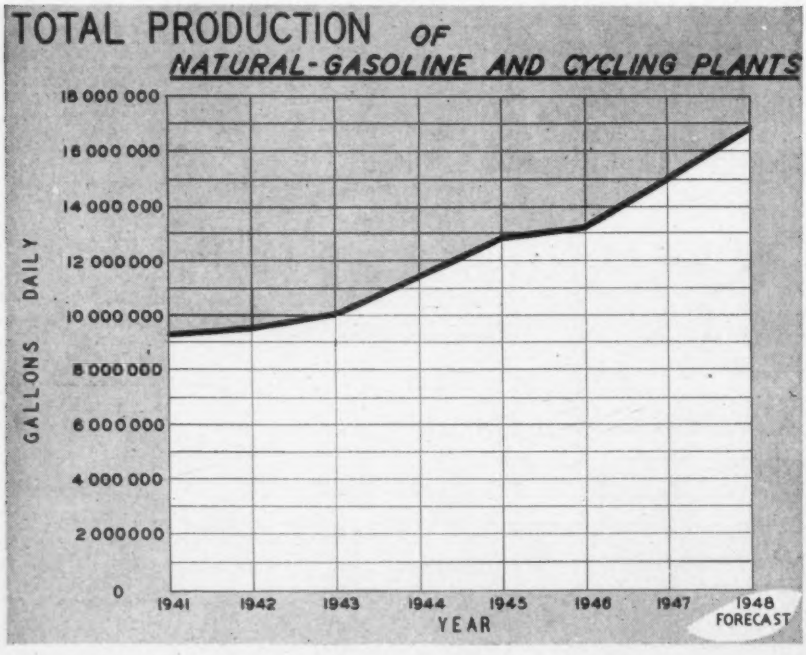
The distribution of L.P.G. from natural-gasoline and cycling plants changed rapidly in 1947. Sales from these plants for fuel and chemical use in the first 10 months of the year increased 40.6 per cent over the same months in 1946. Deliveries to refineries gained only 4.2 per cent in the period. In times of full or oversupply, the surplus butanes and isobutanes move to refineries for blending into gasoline and much of the propane is not extracted from the gas stream. As the demands for fuel and chemical uses increase, more of the supply tends to move toward these more profitable outlets. The big increase in the shipments for fuel and chemical uses is evidence of the outstanding growth in consumer demand.



Outlook for 1948

The outlook for 1948 is for continued demand for L.P.G. and for increased production through the construction of new plants and additions to existing units. The investment in equipment for higher-percentage recovery of propane is much greater than for the lower-yield extraction. There is great pressure for conservation of natural gas. These two factors combined will put the emphasis in 1948 on the volume of gas treated. The light-product recovery will probably remain at about the same yield per thousand cubic feet handled. The potential supply of propane, remaining in the treated gas, will be tapped when materials become more readily available. If the present trends continue beyond 1948, there will be a ready market for the additional propane that can be produced at existing plants when equipment for its separation can be built.

Current records indicate that four states: Texas, California, Louisiana, and Oklahoma, account for over 85 per cent of the production. In the first 10 months of 1947 Texas produced almost 50 per cent of the total volume increase and Louisiana has had the greatest percentage gain. The accompanying table lists the total output of the four states since 1941.



The figures, used for production and distribution of light products, are on the Bureau of Mines basis and include all production except that which is classified as crude by the bureau. Since some of the field condensate is mixed with crude and is transported to the refineries in crude-oil pipe lines, it is reported as crude in the runs to stills. Because of the difficulty in separating this distillate from the crude runs in the district totals, the bureau has recorded it as crude production. The forecast for 1948 is on the same basis.

The new production records being set each month indicate that, while the output may not satisfy the total potential demand in 1948, more light products will be available than in any previous year in the history of the petroleum industry.

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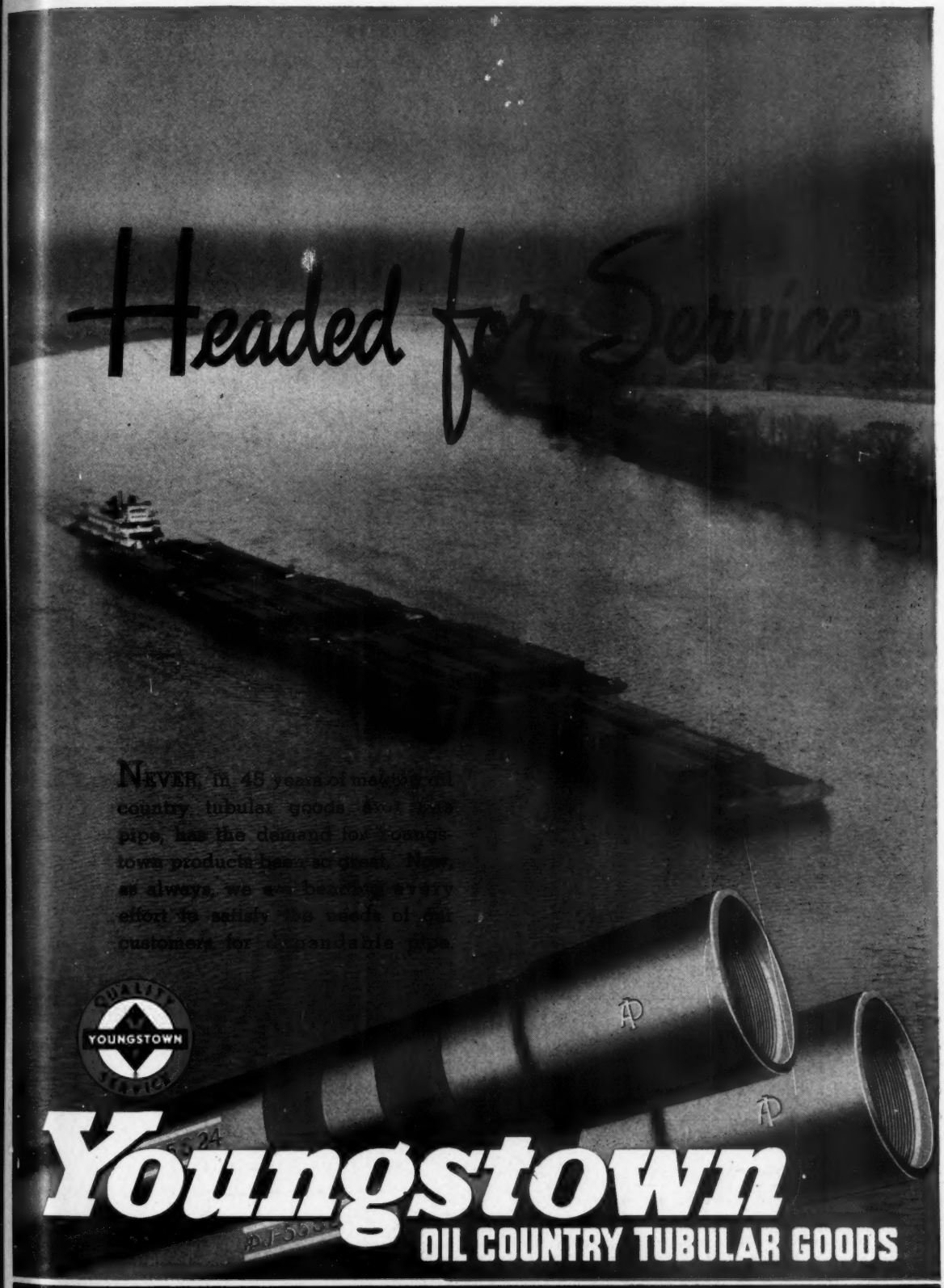
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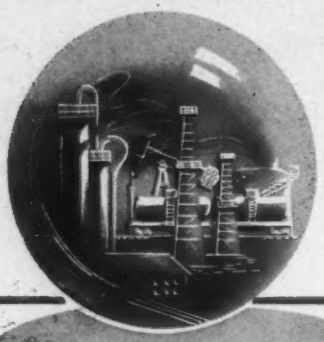


REVIEW - FORECAST

REFINING

Largest Peacetime Plant-Construction Period in History Now Under Way

by R. B. Tuttle

THE manufacturing division of the petroleum industry—refining, natural-gasoline manufacture, cycling, manufacture of petrochemicals, research and development laboratories, and all allied activities—is now undergoing the greatest expansion in the peacetime history of the United States and Canada. The growth in the two countries parallels that in several other countries as reported in the Journal's Annual International Number of December 27, 1947 (reports starting on page 200 and page 214.) Information contained in the following tables is based on data supplied by construction and operating companies.

PLANT CONSTRUCTION PROJECTS

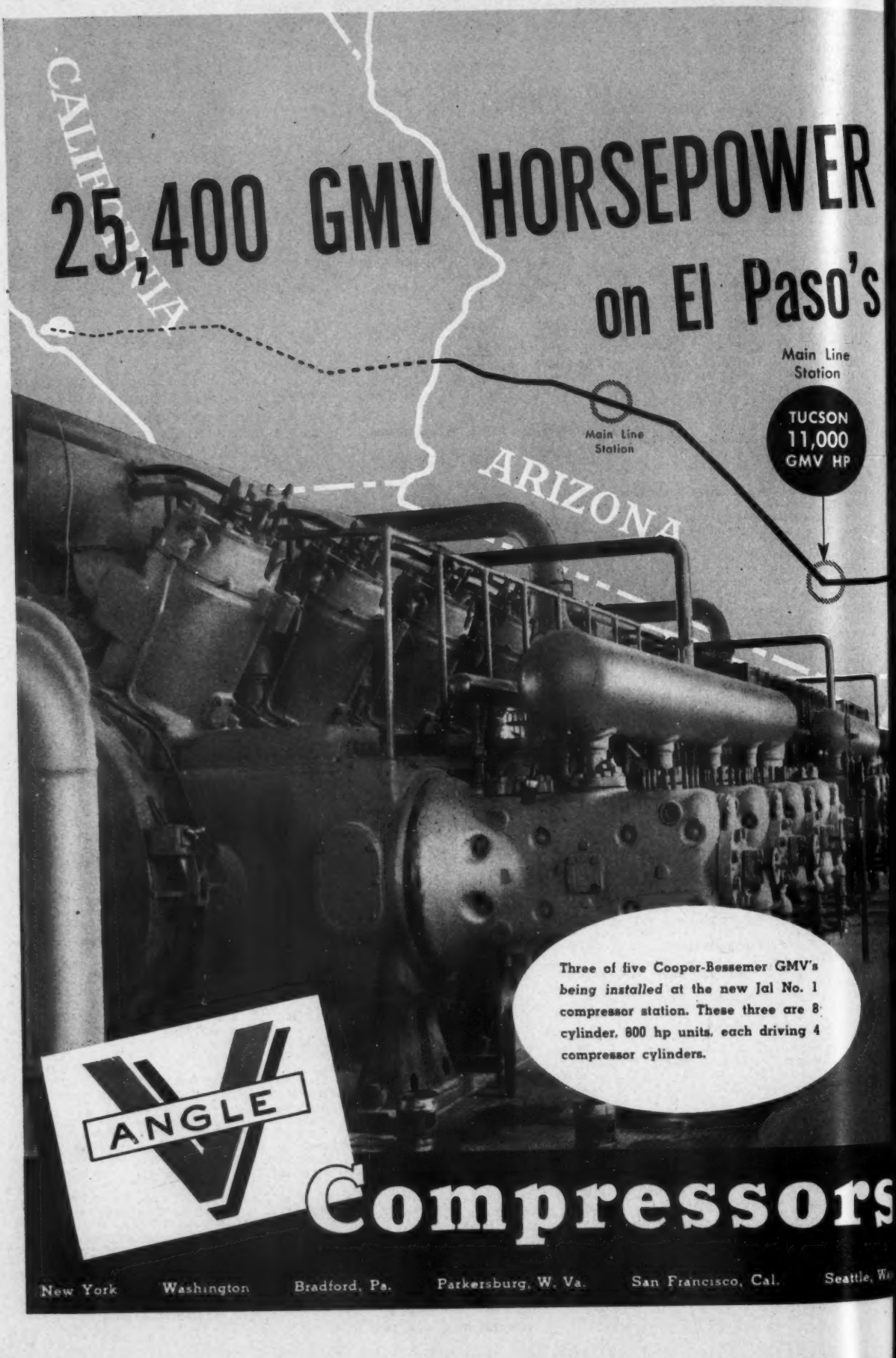
Company, location and type of project—	Capacity rating	Estimated cost	Status	Comp. schedule	Contractors
Aetna Oil Co., Louisville:					
Storage, bbl.	47,000	$130,000	Building	Mid '48	Chicago Bridge & Iron Co.
American Republics Corp. and Houston Oil Co., Hardin County, Texas:					
Gasoline plant	.....	3,000,000	Planned	.....	.....
Atlantic Refining Co., The, Philadelphia:					
Synthetic detergent manufacture, B/D	75,000	.....	Building	Early '48	None
Propane dewaxing plant, B/D	2,500	.....	Building	Early '48	E. B. Badger & Sons Co.
Lube plant, B/D	1,300	.....	Building	Mid '48	E. B. Badger & Sons Co.
Wax-plant addition. ton/D	155	.....	Building	1948	The Lummus Co.-The M. W. Kellogg Co.
Steam-generating-plant extension, lb./hr.	150,000	.....	Building	Early '48	The Babcock & Wilcox Co.
Research and development lab.	.....	.....	Building	1948	Lauter Construction Co.
Atlantic Refining Co., The, Atreco, Tex.:					
Refining-capacity increase, B/D	15,000	.....	Planned	.....	.....
Bareco Oil Co., Wichita, Kans:					
Perco desulfurization-reforming, B/D	400	400,000	Building	Mid '48	Kock Engineering Co., Inc.
Berry Asphalt Co., Waterloo, Ark.:					
Vacuum lube unit, B/D	1,200	275,000	Building	Mid '48	Process Engineers, Inc.
Berry Asphalt Co., Stephens, Ark.:					
Plant expansion	.....	.....	Planned	.....	.....
British-American Oil Co., Ltd., Pt. Moody:					
New refinery	.....	10,000,000	Planned	.....	.....
British-American Oil Co., Ltd., Montreal:					
Fluid cat. cracking unit, B/D	13,500)				
Cat. polymerization unit, B/D	500)	12,500,000	Authorized	Late '49	The M. W. Kellogg Co.
Crude distillation unit, B/D	14,500)				
Cat. polymerization unit, B/D	200	256,000	Building	Mid '48	Koch Engineering Co., Inc.
L.P.G. unit, B/D	200	27,000	Building	Mid '48	Koch Engineering Co., Inc.
Carter Oil Co., The, Billings, Mont.:					
New refinery, B/D	20,000	16,500,000	Building	Late '49	Fluor Corp.
Carthage Hydrocol, Inc., Brownsville, Tex.:					
Gas-processing plant, cu. ft./D	64,000,000	19,000,000	Building	Late '48	Arthur G. McKee & Co.
Champlin Refining Co., Enid, Okla.:					
Phenol-extraction plant, B/D	700	300,000	Building	Early '48	Koch Engineering Co., Inc.
Citcon Corp., Lake Charles, La.:					
Lube-oil plant, B/D	6,000	30,000,000	Building	Late '48	The Lummus Co.-Max B. Miller
Cities Service Oil Co. (Del.), East Chicago:					
Plant modernization	.....	18,000,000	Building	Late '48	The M. W. Kellogg Co.
Laboratory	.....	300,000	Building	Early '48	.....
Claiborne Gasoline Co., Lisbon, La.:					
Gasoline plant	.....	1,250,000	Building	Late '48	Petroleum Engineering, Inc.
Continental Oil Co., Billings, Mont.:					
New refinery, B/D	6,800	8,500,000	Building	Mid '49	Jones & Laughlin Supply Co.
Continental Oil Co., Ponca City, Okla.:					
Modernize refinery	.....	1,000,000	Planned	1948	.....
Continental Oil Co., Denver:					
Plant revamping	.....	3,800,000	Building	Mid '48	The Lummus Co.
Cooperative Refinery Assn., Coffeyville, Kans.:					
M.E.K. dewaxing unit, B/D	2,500	2,000,000	Building	Late '48	Process Engineers, Inc.
Cosden Petroleum Corp., Big Spring, Tex.:					
Cat. cracking unit	.....	.....	Considering	.....	.....
Derby Oil Co., The, Wichita, Kans.:					
Propane-recovery unit	.....	.....	Building	Early '48	.....
Asphalt-packaging plant	.....	.....	Building	Early '48	.....
Fen Ter Refining Co., Winnewood, Okla:					
Asphalt unit	.....	.....	Planned	.....	.....
General Petroleum Corp., Torrance, Calif.:					
Revamping crude unit	.....	558,000	Authorized	Mid '48	C. F. Braun Co.
Gray-Wolfe Co., The, Montgomery County, Texas:					
Cycling plant, cu. ft./D	19,000,000	555,000	Building	Early '48	O. L. Olsen

(Continued on Next Page)

PLANT CONSTRUCTION PROJECTS (Continued)

Company, location and type of project—	Capacity rating	Estimated cost	Status	Comp. schedule	Contractors
Gulf Oil Corp., Cincinnati and Toledo:					
Cat. cracking units	.....	20,000,000	Building	Late '49	E. B. Badger & Sons Co. and M. W. Kellogg Co.
Gulf Oil Corp., Port Arthur, Tex.:					
Distillation unit	.....	.....	Building	.....	E. B. Badger & Sons Co.
Gulf Oil Corp., Toledo:					
Expanding crude unit	.....	.....	Building	.....	E. B. Badger & Sons Co.
Humble Oil & Refining Co., Harris County, Texas:					
Recycling plant	.....	.....	.....	Early '48	Stearns-Roger Mfg. Co.
Humble Oil & Refining Co., Baytown, Tex.:					
Lube plant	.....	5,000,000	Building	Early '48	E. B. Badger & Sons Co.
Imperial Oil, Ltd., Edminton:					
New refinery, B/D	6,000	.....	Building	Mid '48	.....
Imperial Oil, Ltd., Montreal:					
Fluid cat. cracking unit, B/D	11,000	.....	Building	.....	.....
Cat. polymerization unit, B/D	4,200	.....	Building	.....	.....
Enlarge crude unit, B/D	5,000	.....	Building	.....	.....
Kanotex Refining Co., Arkansas City, Kans.:					
Perco desulfurization-reforming, B/D	4,200	500,000	Building	Mid '48	Koch Engineering Co., Inc.
Lone Star Producing Co., Henderson County, Texas:					
Gasoline plant, gal./D	2,000	700,000	Building	Late '48	.....
Magnolia Petroleum Co., Seeligson field, Texas:					
Cycling plant, cu. ft./D	220,000,000	.....	Building	Early '49	.....
Magnolia Petroleum Co., Mamou, La.:					
Gasoline plant, cu. ft./D	2,000,000	.....	Building	Late '48	.....
Magnolia Petroleum Co., Hugoton field, Kansas:					
Gasoline plant, cu. ft./D	75,000,000	.....	Building	Late '48	.....
Mid-Continent Petroleum Co., W. Tulsa:					
Fluid cat. cracking unit, B/D	15,000	.....	Building	Late '48	.....
Monarch Refineries, Inc., Oklahoma City:					
Vacuum lube unit	.....	.....	Planned	.....	.....
National Cooperative Refinery Association, McPherson, Kans.:					
Perco desulfurization-reforming, B/D	5,000	400,000	Building	Early '48	Koch Engineering Co., Inc.
North Star Refining Co., Shelby, Mont.:					
Moving refinery	.....	.....	Planned	.....	.....
Ohio Oil Co., The, Robinson, Ill.:					
Fluid cat. cracking unit, B/D	12,400)				
Atmospheric and vacuum unit, B/D	25,000)				
Cat. polymerization unit, B/D	3,800)				(Arthur G. McKee & Co.
Steam generator extension, lb./hr.	120,000)	15,000,000	Building	1948	(Universal Oil Products Co.
Electric generator extension, kw.	10,000)				(J. F. Prichard & Co.
Asphalt oxidizing unit	.....)				
Gas-recovery unit	.....)				
Gasoline-treating unit	.....)				
Pan American Producing Co., Kountze, Tex.:					
Cycling plant, cu. ft./D	5,000,000	190,000	Building	Early '48	O. L. Olsen
Petco Corp., Blue Island, Ill.:					
Reforming unit	.....	.....	Considering	.....	.....
Petco Corp., Marrero, La.:					
Refinery expansion	.....	.....	Planned	1948	.....
Producers Refinery, Inc., West Branch, Mich.:					
Refinery expansion, B/D	1,500	.....	Planned	1948	.....
Pure Oil Co., The, Nederland, Tex.:					
Lube unit	.....	.....	Building	.....	.....
Pure Oil Co., The, Newark, Ohio:					
Fluid cat. cracking unit, B/D	5,000	.....	Building	.....	.....
Richardson & Bass, Kermit, Tex.:					
Gasoline plant, cu. ft./D	130,000,000	.....	Building	Late '48	Jones & Laughlin Supply Co.
Richfield oil Corp., Kern County, California:					
Gasoline plant, cu. ft./D	60,000,000	1,670,000	Building	Early '48	C. F. Braun Co.
Shamrock Oil & Gas Corp., The, Sunray, Tex.:					
Gasoline plant	.....	.....	Building	Early '48	Gasoline Plant Construction Corp.
Shell Oil Co., Inc., Wilmington and Martinez, Calif:				Mid '48	Shell, Bechtel Corp., Ralph M.
Extensions (motor lab, insecticide, and absorption plants)	.....	.....	Building		Parsons Co.
Shell Oil Co., Inc., Houston:					
Lube plant, B/D	2,800	.....	Building	Mid '48	The Lummus Co., The M. W. Kellogg Co., Fluor Corp.
Shell Oil Co., Inc., Norco, La.:					
Fractionator, B/D	12,000	.....	Building	Mid '48	None
Cracked asphalt plant, tons/yr.	30,000	.....	Building	Early '48	None
Sinclair Refining Co., East Chicago:					
Fluid cat. cracking unit, B/D	25,000	.....	Building	Early '48	C. F. Braun Co.
Lube-treating plant, B/D	2,500	.....	Building	Mid '48	The Lummus Co.
Polymerization unit	.....	.....	Building	Early '48	C. F. Braun Co.
Crude unit, B/D	30,000	.....	Building	Mid '48	C. F. Braun Co.
Sinclair Refining Co., Marcus Hook, Pa.:					
Fluid cat. cracking unit, B/D	25,000	.....	Building	Early '48	C. F. Braun Co.
Polymerization unit	.....	.....	Building	Early '48	C. F. Braun Co.
Vacuum unit, B/D	24,000	.....	Building	Early '48	C. F. Braun Co.
Sinclair Refining Co., Houston:					
Crude unit, B/D	30,000	.....	Building	Early '48	The Fluor Corp., Ltd.
Grease works and barrel house	.....	.....	Building	Mid '48	The Fluor Corp., Ltd.
Skelly Oil Co., Velma pool, Oklahoma:					
Gasoline plant, gal./D	75,000	5,000,000	Building	Early '48	Born Engineering Co.
Skelly Oil Co., Eunice, N. M.:					
Gasoline plant, gal./D	45,000	.....	Building	Early '48	J. E. Carlson Construction Co.
Socony-Vacuum Oil Co., Inc., Paulsboro, N. J.:					
Crude unit	.....	.....	Building	Early '48	E. B. Badger & Sons Co.-The Lummus Co.
Lube unit	.....	.....	Building	.....	E. B. Badger & Sons Co.

(Continued on page 189)


CALIFORNIA
ARIZONA
Main Line Station
Main Line Station
TUCSON
11,000
GMV HP
Three of five Cooper-Bessemer GMV's being installed at the new Jal No. 1 compressor station. These three are 8 cylinder, 800 hp units, each driving 4 compressor cylinders.

25,400 GMV HORSEPOWER on El Paso's

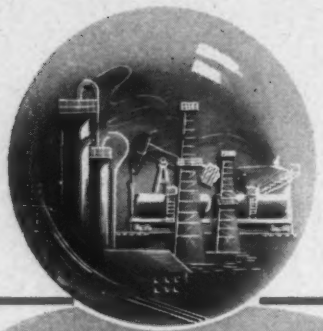
ANGLE V

Compressors

New York Washington Bradford, Pa. Parkersburg, W. Va. San Francisco, Cal. Seattle, Wa

PLANT CONSTRUCTION PROJECTS (Continued)

Company, location and type of project—	Capacity rating	Estimated cost	Status	Comp. schedule	Contractors
Socony-Vacuum Oil Co., Inc., Casper, Wyo.:					
Cat. cracking unit, B/D	8,000	.....	Building	Early '49	.....
Socony-Vacuum Oil Co., Inc., E. St. Louis, Ill.:					
Refinery expansion	.....	.....	Planned	Early '49	.....
Socony-Vacuum Oil Co., Inc., Augusta, Kans.:					
Cat. cracking unit, B/D	10,000	.....	Planned	Early '49	.....
Southwestern Oil & Refining Co., Corpus Christi					
Cat. cracking unit, B/D	5,000	800,000	Building	Mid '48	Process Engineers, Inc.
Standard Oil Co. (California), Salt Lake City:					
Refinery, B/D	25,000	5,000,000	Planned	.....	.....
Standard Oil Co. (California), Bakersfield:					
Cat. cracking unit, B/D	10,000	75,000,000	Authorized	Mid '49	.....
Standard Oil Co. (California), Salt Lake City:					
Crude unit, B/D	25,000	5,000,000	Authorized	Late '48	.....
Standard Oil Co. (N. J.), Baton Rouge:					
Refinery expansion	.....	.....	Building	Early '48	E. B. Badger & Sons Co., The M. W. Kellogg Co., Arthur G. McKee & Co., C. F. Braun Co.
Standard Oil Co. (N. J.), Linden, N. J.:					
Refinery expansion	.....	.....	Authorized	Early '49	C. F. Braun Co.
Standard Oil Co. (Ind.), Whiting, Ind.:					
Cat. cracking unit, B/D	25,000	.....	Building	1948	The M. W. Kellogg Co.
Expanding crude and coking units, B/D	27,000	.....	Building	1948	The Lummus Co.
Standard Oil Co. (Ind.), Sugar Creek, Mo.:					
Cat. cracking unit, B/D	25,000	.....	Building	1948	The M. W. Kellogg Co.
Standard Oil Co. (Ind.), Casper, Wyo.:					
Cat. cracking unit, B/D	8,000	.....	Building	1949	The M. W. Kellogg Co.
Standard Oil Co. (Ohio), Lima, Ohio:					
Cat. cracking unit, B/D	16,000	10,000,000	Building	Late '49	Arthur G. McKee & Co.
Gas-recovery unit	.....	500,000	Building	Late '48	None
Standard Oil Co. (Ohio), Latonia, Ky.:					
Waste-oil separator	.....	300,000	Authorized	Late '48	Contract not let
Stanolind Oil & Gas Co., Hugoton field, Kansas:					
Gasoline plant, cu. ft./D	100,000,000	.....	Authorized	Late '48	Jones & Laughlin Supply Co.
Hydrocarbon synthesis plant, cu. ft./D	100,000,000	.....	Authorized	Early '50	The M. W. Kellogg Co., Foster Wheeler Corp., Stone & Webster Eng. Corp.
Chemicals recovery and refining, lb./yr.	100,000,000	.....	Authorized	Early '50	E. B. Badger & Sons Co.
Stanolind Oil & Gas Co., Brownsville, Tex:					
Chemicals recovery and refining, lb./yr.	100,000,000	.....	Authorized	Mid '49	E. B. Badger & Sons Co.
Stanolind Oil & Gas Co., Hockley County, Texas. Joint ownership:					
Gasoline plant, cu. ft./D	90,000,000	.....	Building	Early '49	C. F. Braun Co.
Stanolind Oil & Gas Co., Park County, Wyoming. Joint ownership:					
Gasoline plant, cu. ft./D	12,000,000	.....	Building	Early '49	Stone & Webster Eng. Corp.
Stanolind Oil & Gas Co., Bee County, Texas. Joint ownership:					
Cycling plant, cu. ft./D	166,000,000	.....	Building	Early '49	Jones & Laughlin Supply Co.
Stanolind Oil & Gas Co., Levelland field, Texas. Joint ownership:					
Gasoline plant	.....	.....	Planned	.....	.....
Stanolind Oil & Gas Co., Fullerton field, Texas. Joint ownership:					
Gasoline plant	.....	.....	Planned	.....	.....
Stanolind Oil & Gas Co., North Cowden field, Texas. Joint ownership:					
Gasoline plant	.....	.....	Planned	.....	.....
Stanolind Oil & Gas Co., South Cowden field, Texas. Joint ownership:					
Gasoline plant	.....	.....	Planned	.....	.....
Sun Oil Co., Marcus Hook, Pa.:					
Furfural unit, B/D	2,000	750,000	Building	Early '48	Process Engineers, Inc.
M.E.K. unit, B/D	1,800	.....	Building	Early '48	Process Engineers, Inc.
Compounding plant	.....	.....	Building	.....	.....
Sunray Oil Corp., Duncan, Okla.:					
Expanding refining facilities, B/D	25,000	1,500,000	Building	Early '48	The Refinery Engineering Co., Mason Bros.
Texas Co., The, Westville, N. J.:					
New refinery, B/D	40,000	.....	Building	Mid '49	Foster Wheeler Corp., The M. W. Kellogg Co., Jackson-Moreland
Texas Co., The, West Tulsa:					
Refinery modernization, B/D	30,000	.....	Building	Mid '49	Foster Wheeler Corp., The M. W. Kellogg Co., Universal Oil Products Co.
Texas Co., The, Port Arthur, Tex.:					
Expansion of lube facilities	.....	.....	Building	Early '49	Foster Wheeler Corp.
Alteration of treating facilities	.....	.....	Building	Early '49	Foster Wheeler Corp.
Texas Co., The, Lawrenceville, Ill.:					
Refinery expansion, B/D	20,000	.....	Planned	.....	.....
Utah Oil & Refining Co., Salt Lake City:					
Refinery expansion	.....	2,500,000	Authorized	Late '48	.....
Wood River Oil & Refining Co., Wood River, Ill.:					
Perco cat. and reforming, B/D	8,000	1,500,000	Building	Early '48	Koch Engineering Co., Inc.
Enlarge crude unit, B/D	35,000	500,000	Building	Late '48	Koch Engineering Co., Inc.
Warren Petroleum Corp., Madill, Okla.:					
Gasoline plant, cu. ft./D	25,000,000	.....	Authorized	Late '48	Hudson Engineering Corp.
Warren Petroleum Corp., Holliday, Tex.:					
Gasoline-plant expansion, cu. ft./D.	20,000,000	.....	Authorized	Late '48	None
Warren Petroleum Corp., Maysville, Okla. Joint ownership:					
Gasoline plant, cu. ft./D	50,000,000	.....	Building	Late '48	Dresser Engineering Co.
Winnsboro Refining Co., Winnsboro, Tex.:					
New refinery, B/D	2,800	.....	Building	Early '48	Petro Chemical Engineering & Construction Corp.



REVIEW - FORECAST

PIPE LINES

23,707 Miles of New Line, Foreign and Domestic, Seen for 1948-51 Period

by Paul Reed

PIPE LINES laid in the United States in 1947 totaled approximately 8,130 miles including 1,355 miles for crude oil, 2,000 miles for products, and 4,785 miles for natural-gas systems. Construction of pipe lines in the United States in 1948 is likely to exceed the 1947 program. The announced future programs, mostly for the 1948-51 period, total 23,707 miles, of which 17,606 miles are for domestic and 6,101 miles are for foreign projects.

A characteristic of the present period is the prolonging of construction projects because of the pipe-supply situation. Furthermore, progress of foreign work will be much influenced by political conditions. However, it is clear that the industry is entering the greatest period of pipe-line construction.

TABLE 1—MAJOR DOMESTIC CRUDE-OIL PROJECTS
1947-1951 (announced)

Company—	Miles	Inch	Status	Location
Stanolind Pipe Line Co.	178	20	Completed	Drumright, Okla.-Freeman, Mo.
Stanolind Pipe Line Co.	260	20-22	Under way	La Plata, Mo.-Manhattan, Ill., as part of 20-in. Drumright, Okla.-Whiting, Ind., looping program nearing completion.
Stanolind Pipe Line Co.	69	8	Completed	Caprock, N. M.-Slaughter, Tex.
Stanolind Pipe Line Co.	50	8	Completed	Post pool-Petersburg, Tex.
Stanolind Pipe Line Co.	244	16	Under way	Slaughter, Tex.-Drumright, Okla., looping.
Stanolind Pipe Line Co.	80	16	Planned	Wheeler-Wasson, Tex., extension.
Stanolind Pipe Line Co.	70	12	Planned	Lysite-Casper, Wyo., loops.
Stanolind Pipe Line Co.	130	8	Planned	Wamsutter-Casper, Wyo.
Stanolind Pipe Line Co.	197	12-16	Planned	Casper, Wyo.-Freeman, Mo., loops.
Magnolia Pipe Line Co.	650	20	Under way	Corsicana, Tex.-Patoka, Ill.
Magnolia Pipe Line Co.	98.5	12	Completed	Martens-Iaatan stations, West Texas.
Jal-Cushing project (Texas Pipe Line Co., Shell Pipe Line Corp., Empire Pipeline Co., Sinclair Refining Co.)	500	20-22-24	Under way	Jal, N. M.-Cushing, Okla.
Ozark Pipeline System (Shell Pipe Line Corp. and Texas Pipe Line Co.)	500	20-16	Planned	Cushing, Okla.-Wood River, Ill., to Salem, Ill.
Shell and other companies	1,045	20	Planned	Midland, Tex.-Wilmington, Calif.
Gulf Refining Co.	105	8-10	Under way	Midland-Lufkin, Tex., loops.
Gulf Refining Co.	48	10	Completed	Illinois and Indiana loops.
Mid-Continent Pipe Line Co.	50	6	Completed	St. Louis, Okla.-Pauls Valley, Okla.
Sunray Oil Corp.	93	6	Completed	Allen-Beckett, Okla.
Sinclair Refining Co.	50	18	Completed	Humboldt-Little Blue, Kans., looping.
Interstate Oil Pipe Line Co.	45	12	Completed	Oklahoma City-Maysville, Okla.
Standard Oil Co. of California	160	10	Planned	Rangely, Colo.-Salt Lake City.
Arizona Pipe Line Co.	600	8	Planned	Permian basin-Phoenix, Ariz.
Texas Pipe Line Co.	60	16	Planned	West Columbia, Tex.-Houston.
Texas Pipe Line Co.	80	22	Planned	Houston-Port Neches to Port Arthur, Tex.
Humble Pipe Line Co.	50	20	Completed	Satsuma-Baytown, Tex.
Portland Pipe Line Co.	236	20	Planned	Portland, Me.-Montreal, Que., Canada.
Standish Pipe Line Co. (Phillips Petroleum Co.)	289	12	Planned	Goldsmith-Borger, Tex.

TABLE 2—LARGE DOMESTIC PRODUCTS-LINE PROJECTS

Company—	Miles	Inch	Status	Location
Standard Oil Co. (Ind.)	662	8-10	Completed	Joliet, Ill.-Morehead, Minn.-Fargo, N. D.
Shell Pipe Line Corp.	100	6	Completed	Sheridan-Deer Park, Tex.
Phillips Petroleum Co. and Shamrock Oil & Gas Co.	163	6	Completed	McKee, Tex.-La Junta, Colo.
	165	6	Planned	La Junta, Colo.-Denver.
Phillips Petroleum Co.	37	6	Completed	Borger-McKee, Tex.
Phillips Petroleum Co.	120	8	Completed	Borger, Tex.-Richmond, Kans.
Wyco Pipe Line Co. (Standard of Indiana-Texas Co. and Socony-Vacuum Oil Co., Inc.)	267	8	Completed	Casper-Cheyenne, Wyo.
Magnolia Pipe Line Co.	178	12	Completed	Beaumont-Hearne, Tex.
Texas Pipe Line Co.	172	10	Completed	Hearne-Dallas and Fort Worth.
Texas Pipe Line Co.	107	6-8	Under way	Hearne-Austin-San Marcos, Tex.
Sinclair Refining Co.	190	6	Completed	Clinton-Cleveland-Steubenville, Ohio.
Sinclair Refining Co.	225	6	Completed	Corpus Christi - San Antonio - Austin - Bryan, Tex.
Sinclair Refining Co.	270	10	Under way	Houston - Bryan - Arlington, Tex. (Between Dallas and Fort Worth)
Sinclair Refining Co.	185	8	Under way	Arlington, Tex.-Pauls Valley, Okla. (Part of 3,000-mile Houston, Kansas City, St. Louis, Marcus Hook project.)
Connecticut Pipe Line Co.	40	8	Planned	New Haven-Hartford.
Socony-Vacuum Oil Co., Inc.	127	4-6	Planned	Portland-Bangor, Me.
Socony-Vacuum Oil Co., Inc.	83	8	Completed	Paulsboro, N. J.-Midland, Pa.
Great Lakes Pipe Line Co.	54	8	Completed	Ponca City-Barnsdall, Okla.
Sunray Oil Corp. and Wilcox Oil Co.	83	8	Completed	Allen-Bristow-Tulsa, Okla.
Wood River Oil & Refining Co.	67	8	Completed	Peru-Rockford, Ill.

TABLE 3—PRINCIPAL DOMESTIC NATURAL-GAS PROJECTS

Company—	Miles	Inch	Status	Location
Michigan-Wisconsin Pipe Line Co.	1,069	22-26	Under way	Hansford, Tex.-Big Rapids, Mich.
Michigan Consolidated Gas Co. and Austin Field Pipe Line Co.	130	24	Under way	Austin gas-storage field, Big Rapids-Detroit, Mich.
Transcontinental Pipe Line Co.	1,800	26	Planned	Rio Grande Valley, Tex.-New York.
Commonwealth Natural Gas Corp.	537	20	Planned	West Bend, Ky.-Norfolk, Va.
East Tennessee Natural Gas Co.	298	12-16	Planned	Nashville-Chattanooga-Knoxville.
East Tennessee Natural Gas Co.	100	3-4-8	Planned	Lateral lines.
Trunkline Gas Supply Co.	885	30	Planned	Wharton, Tex.-Keokuk, Iowa.
Tennessee Gas Transmission Co.	392	20-26	Completed	Main-line loops.
Tennessee Gas Transmission Co.	524	20-26	Planned	Main-line loops.
Tennessee Gas Transmission Co.	770	30	Planned	Main-line loops.
Tennessee Gas Transmission Co.	790	20-26	Planned	Burnaugh, Ky.-Boston.
Tennessee Gas Transmission Co.	99	16	Completed	Agua Dulce-San Salvador, Tex.
Tennessee Gas Transmission Co.	65	16	Planned	Ohio-Pittsburgh spur.
Tennessee Gas Transmission Co.	83	20	Completed	Carthage, Tex., spur.
El Paso Natural Gas Co.	740	26	Completed	Eunice, N. M.-Blythe, Calif.
El Paso Natural Gas Co.	180	12-18	Completed	Gathering lines in New Mexico and West Texas.
El Paso Natural Gas Co.	525	26	Planned	Eunice, N. M.-Blythe, Calif., looping.
El Paso Natural Gas Co.	248	24	Planned	Eunice, N. M.-Dumas, Tex., extension.
El Paso Natural Gas Co.	470	26	Planned	San Juan basin, N. M.-Needles, Calif.
Southern California Gas Co. and Southern Counties Gas Co.	214	30	Completed	Blythe, Calif.-Los Angeles.
Southern California Gas Co.	43	6-8-10	Completed	Trico-Delano-Tipton-Porterville, Calif.
Colorado Interstate Gas Co.	260	20	Completed	Lakin, Kans.-Denver.
Colorado Interstate Gas Co.	140		Completed	Lakin, Kans., gathering system.
Colorado-Wyoming Gas Co.	101	8-16	Planned	Cheyenne, Wyo.-Denver.
Continental Oil Co.	50	14	Completed	Tepetate-Westlake-Lake Charles, La.
Southern Natural Gas Co.	138	20-22	Planned	Chattanooga-Lexington, Miss.
New York State Natural Gas Co.	155	12-16	Completed	Pennsylvania.
Ohio Fuel & Gas Co.	149	10-20	Completed	Ohio.
Mississippi River Fuel Corp.	230	10-22	Completed	Perryville, La.-St. Louis, loops.
East Ohio Gas Co.	50	20	Completed	Jackson-Brook Park, Ohio.
East Ohio Gas Co.	84	20	Planned	Monroe-Starky counties, Ohio, to connect with Texas Eastern.
East Ohio Gas Co.	43	20	Completed	Barbertown, Ohio, area.
Memphis Natural Gas Co.	1,000	24	Planned	East Texas-Pittsburgh.
Atlantic Seaboard and Virginia Gas Transmission Co.	268	24	Planned	Cobb, W. Va.-Rockville, Md.
Manufacturers Light & Heat Co. and Home Gas Co.	130	14	Under way	Coatesville, Pa.-Port Jervis, N. Y.
Manufacturers Light & Heat Co. and Home Gas Co.	58	10-14	Planned	New York State lines and connections with Texas Eastern.
United Natural Gas Co.	71	20	Completed	Cerado, W. Va.-Crawford, Ohio.
United Fuel Gas Co.	50	20	Completed	West Virginia.
Atlantic Gulf Gas Co.	1,530		Planned	Alabama-Florida-Georgia-South Carolina.
United Gas Pipe Line Co.	33	20	Completed	Carthage-Longview, Tex.
United Gas Pipe Line Co.	93	18	Planned	Baxterville, Miss.-Mobile, Ala.
United Gas Pipe Line Co.	41	10-12	Completed	Barataria, La.-New Orleans.
Panhandle Eastern Pipe Line Co.	702	26	Planned	Main-line loops.
Cities Service Gas Co.	405	26	Under way	Guymon, Okla.-Kansas City, Mo.
Cities Service Gas Co.	47	12-16	Completed	Guthrie-Drumright, Okla.
Cities Service Gas Co.	40	20	Planned	Independence, Kans.-Joplin, Mo.
Northern Natural Gas Co.	198	4-20	Completed	Extensions, loops and laterals.
Natural Gas Pipeline Co. of America and Chicago District Pipeline Co.	207	24	Completed	Main-line loops.

TABLE 4—MAJOR FOREIGN CRUDE-OIL PROJECTS

1947-1955 (announced)

Company—	Miles	Inch	Status	Location
Socony-Vacuum Oil Co., S.A.	103	12	Completed	Oficina area-Puerto la Cruz, Venezuela.
Yacimientos Petroliferos Fiscales Bolivianos	255	6	Under way	Camiri-Cochabamba-Sucre, Bolivia.
S. A. Petrolera Las Mercedes (Texas Co and Caracas Petroleum Co.)	157	16	Under way	Las Mercedes field-Pamatacual, Venezuela.
Creole Petroleum Co.	155	26	Planned	Ule Tank Farm, La Salina-Amuay Bay, Paraguana, Venezuela.
Iraq Petroleum Co., Ltd.	1,200	16	Under way	Kirkuk, Iraq-Haifa, Palestine, and Tripoli, Lebanon.
Iraq Petroleum Co., Ltd.	500	30-32	Planned	Iraq-Levantine port.
Trans-Arabian Pipe Line Co.	1,040	30-31	Planned	Abqaiq-Saudi Arabia-Sidon, Lebanon.
Arabian American Oil Co.	61	20-22	Under way	Abqaiq-Ras Tanura, Saudi Arabia.
Anglo Iranian Oil Co., Ltd.	56	20-22	Planned	Agha Jari-Mashur, Iran.
Middle East Pipe Line Co.	800	34-36	Planned	Iran-Levantine port.

TABLE 5—LARGE FOREIGN PRODUCTS LINE PROJECTS

Company—	Miles	Inch	Status	Location
Tropical Oil Co.	65	6	Completed	Barrancabermeja-Cantimplora (near Puerto Berrio), Colombia.
Ministry of Petroleum of Colombia and Antioqua R. R.	107		Planned	Puerto Berrio-Medellin, Colombia.
Cie. des Pipe Lines Petroliers Francais	150	10	Planned	Le Havre-Paris, France.
Svenska Enterprenad Aktiebolget	220	..	Planned	Uddevalla-Vasteras, Sweden.
National Petroleum Council of Brazil	30	..	Planned	Santos-Sao Paulo, Brazil.

TABLE 6—PRINCIPAL FOREIGN NATURAL-GAS PROJECTS

Company—	Miles	Inch	Status	Location
States Gas Service Dept. of Argentina	1,100	10	Under way	Comodoro-Rivadavia-Buenos Aires, Argentina.
Gas Industrial de Monterrey, S. A.	135	14	Completed	Reynosa-Monterrey, Mexico.
Petroleos Mexicanos	150	20	Planned	Posa Rica-Mexico City, Mexico.
U.S.S.R.	500		Completed	Saratov-Moscow, Russia.
U.S.S.R.	360	..	Under way	Dashiva (in Carpathians)-Kiev, Ukraine.

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AGE RESISTANCE

RESILIENT parts made from HYCAR American rubber resist the aging effects of air, sunlight, ozone, heat, cold, and all other types of oxidation. That's why they *stay* resilient—and stay on the job for a long, long time.

Other important properties of HYCAR American rubber are shown in the box at the right. And it's important to know that these properties may be had in an almost limitless number of combinations—each compounded to meet a given set of service conditions.

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5. *Provides high elasticity.*
6. *Gives high tensile strength.*
7. *Has minimum tendency to cold flow and compression set.*

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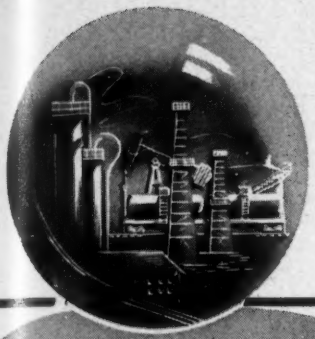


REVIEW - FORECAST

EXPORT-IMPORT

Total Imports Seen As Exceeding Exports Due to Expanding Demands

by Polly DeArmond

THE rapidly expanding demand for refined products in this country will result in total imports of crude plus refined products exceeding the total exports for the first time in many years. Most of the supply-and-demand forecasts for next year predict a slight decline in total exports to about the 1946 level. This decrease, combined with the 15 per cent increase forecast for imports, should result in imports exceeding exports on net balance by about 75,000 bbl. daily.

The year 1947 ended with a net export balance of about 5,000,000 bbl., the smallest margin in years. Actual reports for the first 10 months and estimates for the other two indicate total exports of crude and refined products of a little less than 165,000,000 bbl. with imports almost 160,000,000 bbl. Since 1943, the trend of total imports has been consistently upward with almost the same volume increase each year.

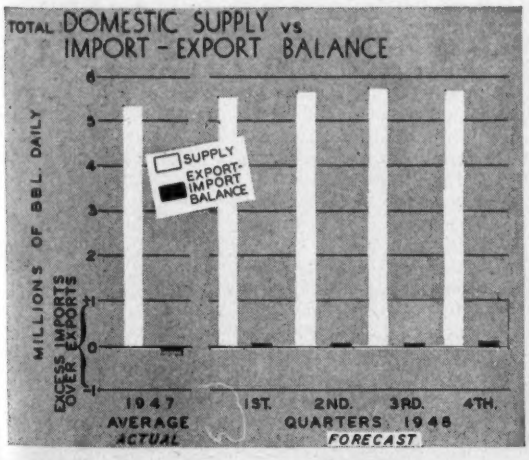
An analysis of our total imports in recent years indicates that 60-64 per cent of the total is crude oil. Crude represented 64 per cent of the total in 1946, 62 per cent in 1947, and it will probably be about 63 per cent in 1948. Almost all of the refined product imports are heavy fuel oil. About two-thirds of this fuel is imported and stored duty free under bond at seaports. This bonded oil is used for bunker fuel on vessels in foreign trade.

It is possible that 1948 may bring some minor shifts in the distribution of our imports by country of origin. For several years, most of imported crude has come from the Caribbean Sea area, mainly from Venezuela with smaller amounts from Columbia and Mexico. The refined products, for the most part, have come from the Caribbean islands of Aruba and Curacao, where large refineries operate on South American crude. Of total 1946 imports (crude plus refined products) Venezuela shipped 56 per cent, Aruba-Curacao 32 per cent, Columbia 6 per cent, and Mexico 5 per cent. The remaining 1 per cent was made up of small across-the-border Canadian shipments, some fuel and asphalt from Trinidad, and one tanker load of crude from the Persian Gulf area.

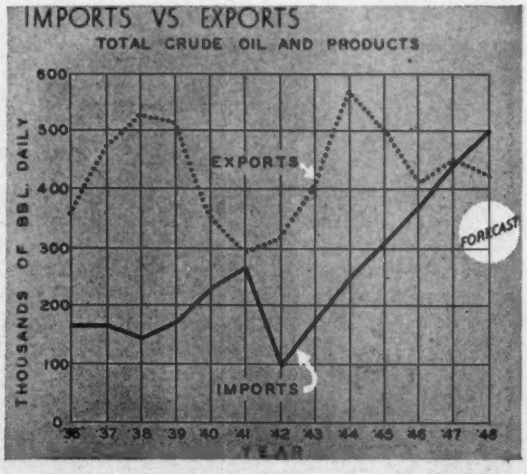
TABLE 1—IMPORTS—CRUDE AND REFINED PRODUCTS*
(Thousands of barrels)

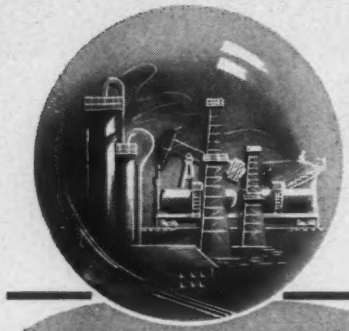
Year	Crude	Heavy fuel	Other products	Total
1936	32,327	18,801	5,976	57,104
1937	27,484	22,114	7,559	57,157
1938	26,412	21,065	6,831	54,308
1939	33,095	15,680	10,285	59,060
1940	42,662	29,366	11,723	83,751
1941	50,606	37,369	9,167	97,142
1942	12,297	18,432	5,237	35,966
1943	13,833	27,210	22,369	83,412
1944	44,805	36,485	10,966	92,256
1945	74,337	31,648	7,634	113,619
1946	86,066	42,067	6,900	135,033
†1947	99,000	53,000	7,500	159,500
‡1948	115,500	59,000	8,000	182,500

*Historical data from Bureau of Mines. †Ten months actual, two months estimated. ‡Forecast.



Solid bar below zero line shows exports exceeded imports in 1947. Solid bars above zero line indicate imports estimated to exceed exports in 1948. White bars indicate total domestic supply for comparison with net import-export balance





REVIEW - FORECAST

NATURAL GAS

17,000 More Miles of Large-Diameter Lines Seen During Next 5 Years

by Henry D. Ralph

NATURAL-GAS production, sales, transportation, and use increased at unprecedented rates during 1947 but the demand is still so far from satisfied that 1948 promises to be an even bigger year for this billion-dollar industry.

The nation's needs for natural gas are apparently so insatiable that the industry has started an expansion program which will require several years to complete. Interstate gas-transmission companies obtained certificates to construct more than 5,000 miles of new trunk lines during the year, and applications were filed for future construction totaling nearly three times this figure.

Long-range plans indicate that some 17,000 miles of large-diameter transmission lines will be built during the next 5 years. Already the network of natural-gas pipe lines, large and small, totals more than 230,000 miles—equal to the nation's trunk-line railroad mileage. The trend is markedly toward transmission lines of very large diameter, greatly increasing the volume transported.

Outstanding during the year was completion of a 1,200-mile line bringing West Texas gas to California. Also purchase and conversion of the government-built Big Inch oil pipe-line system, opening the way for Gulf Coast gas to reach the eastern seaboard for the first time. Other projected construction assures huge and untapped markets to natural-gas producers in coming years.

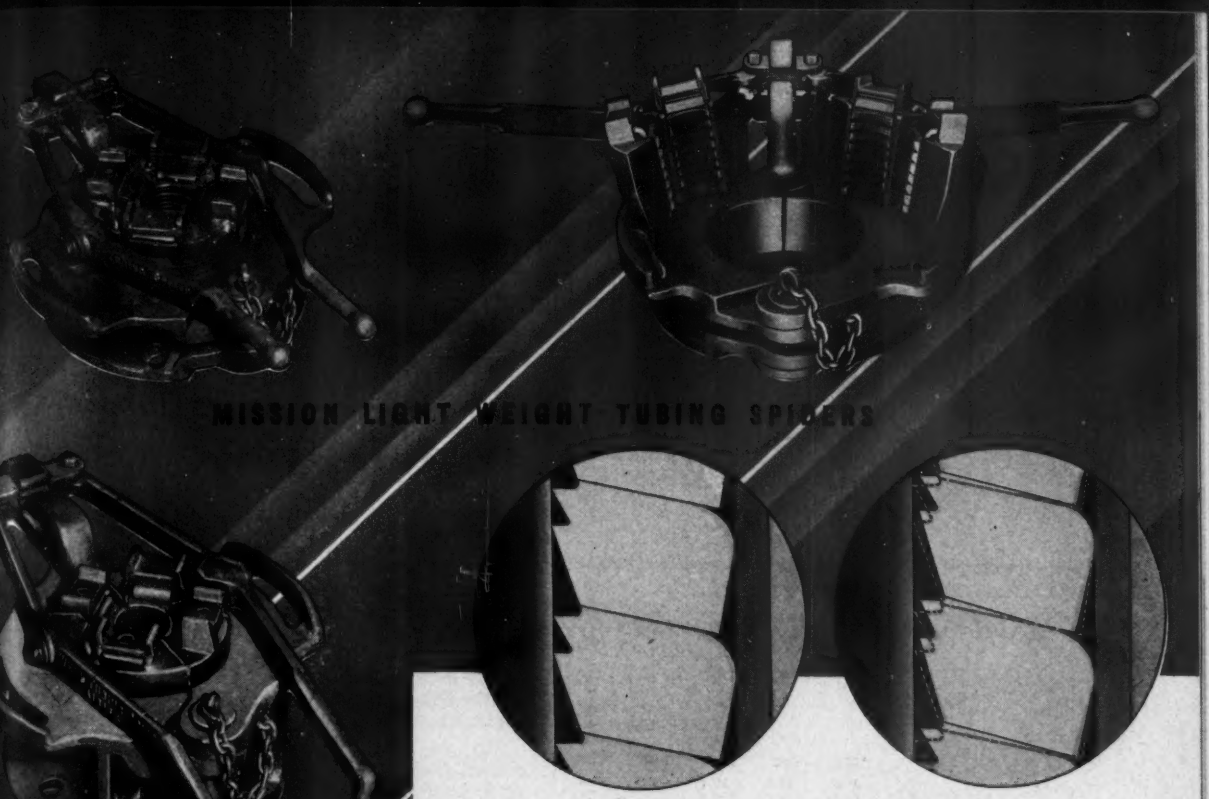
As a result of these developments the field price of gas increased in many areas and promises to go higher. Appreciation of the value of natural gas for other than heating purposes is also growing. Two large projects are now under way to convert gas into liquid fuels and chemical products. The technology of gas processing is advancing significantly.

The higher value of gas in the field led to greater efforts at conservation, and wastage is being reduced through extensive construction of recycling plants, natural-gasoline plants, repressuring projects, and field-gathering systems.

Marketed production of natural gas was approximately 4,400,000,000 M.c.f.—10 per cent higher than 1946—of which 2,500,000,000 M.c.f. was distributed by public utilities and yielded revenues of $855,000,000. The remainder was used in or near the fields, and the total value of all gas marketed was approximately $1,015,000,000.

The number of customers served with natural gas by utility companies increased by 7.2 per cent during 1947 to a total of 10,268,000, and they consumed 14 per cent more gas and yielded 20 per cent more revenue than the previous year.

Top: Natural-gas sales by public utilities as reported by American Gas Association. Bottom: Transmission-line construction authorized for interstate natural gas companies by Federal Power Commission



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MISSION "Rolling Dog" Slips take firm hold instantly, because the contact of the downward moving pipe with the rolling dogs causes them to settle instantly into correct holding position. They let go instantly because the first upward movement of the pipe rolls each individual dog upward and out of tight contact.

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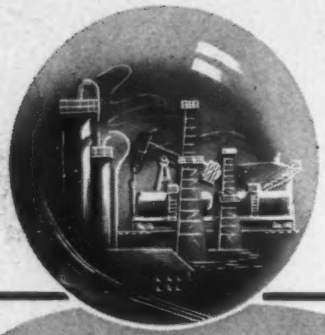


REVIEW - FORECAST

WORLD PRODUCTION

Postwar Gains Outside U. S. Exceed Domestic Increases by 33 Per Cent

by Warren W. Burns

World Crude-Oil Production

(Thousands of barrels daily)

	1947	1946	1938	Increase 1947 over 1946	Increase 1947 over 1938
Canada	19.0	19.6	19.1	—0.6	—0.1
Cuba	0.6	0.6	0.2	.....	0.4
Mexico	135.0	134.4	105.5	20.6	49.5
United States	5,196.4	4,791.2	3,327.0	302.7	1,766.9
Total N. America	5,371.0	4,945.8	3,451.8	322.7	1,816.7
Argentina	59.0	56.9	46.8	2.1	12.2
Bolivia	1.0	1.0	0.6	.....	0.4
Brazil	0.3	0.2	.....	0.1	0.3
Colombia	68.4	60.6	59.1	7.8	9.3
Ecuador	6.3	6.5	6.2	—0.2	0.1
Peru	35.0	34.2	43.4	0.8	—8.4
Trinidad	52.0	55.4	48.6	—3.4	3.4
Venezuela	1,187.0	1,064.5	515.5	122.5	671.5
Total S. America	1,409.0	1,279.3	720.2	129.7	688.8
Albania	1.0	1.0	2.1	.....	—1.1
Austria	15.0	15.5	1.0	—0.5	14.0
Czechoslovakia	0.8	0.5	0.4	0.1	0.2
France	1.0	1.0	1.4	.....	—0.4
Germany	11.8	12.4	10.6	—0.6	1.2
Hungary	12.9	14.1	0.8	—1.2	12.1
Italy	0.2	0.1	0.3	0.1	—0.1
Jugoslavia	1.0	1.0	.....	.....	1.0
Netherlands	3.6	1.2	.....	2.4	3.6
Poland	2.6	2.6	10.3	.....	—7.7
Romania	78.0	86.2	132.8	—8.2	—54.8
Russia and Sakhalin	525.0	500.0	572.0	25.0	—47.0
United Kingdom	1.0	1.1	.....	—0.1	1.0
Total Europe (incl. Asiatic Russia and Sakhalin)	653.7	636.7	731.7	17.0	—78.0
Egypt	24.0	24.5	4.3	—0.5	19.7
Other Africa	0.1	0.2	0.1	—0.1	.....
Total Africa	24.1	24.7	4.4	—0.6	19.7
Bahrein	24.0	21.9	22.7	2.1	1.3
British Borneo	10.0	5.7	18.9	4.3	—8.9
Burma	2.0	1.5	20.7	0.5	—18.7
China	3.0	2.0	.....	1.0	3.0
India	8.0	7.0	6.8	1.0	1.2
Iran	436.4	401.1	214.7	35.3	221.7
Iraq	96.0	96.7	89.4	—0.7	6.6
Japan	4.0	3.7	6.9	0.3	—2.9
Kuwait	55.0	16.3	.....	38.7	55.0
N.E.I.	35.6	11.5	157.0	24.1	—121.4
Saudi Arabia	246.6	165.2	1.4	81.4	245.2
Total Asia (exc. Asiatic Russia and Sakhalin)	920.6	732.6	538.5	188.0	382.1
Total world	8,378.4	7,619.1	5,446.6	656.8	2,929.3

WORLD production of crude oil in 1947 reached the all-time high of 8,378,400 bbl. daily, an increase of 759,300 bbl. daily over 1946, and 2,931,800 bbl. daily over the prewar year 1938; or gains of 10 and 53.8 per cent, respectively. The most significant factor in these increases is the comparison of gains in the United States with those in other producing countries.

In the 1945-47 postwar period, the average annual increase outside the United States has been more than one and a third times as large as the increase inside this country; 339,000 bbl. per day against 254,000 bbl. daily.

This country, with over 62 per cent of the world's production, accounted for only 53 per cent of the 1947 increase over 1946, but almost 64 per cent of the gain over 1938. Between 1938 and 1947 output in the United States expanded by 1,869,400 bbl. daily. This can be divided on a basis of war years and postwar years. In the 7-year 1938-1947 period, the average annual increase was about 195,000 bbl. per day. In the 2-year postwar period 1945-47, the average annual gain was about 254,000 bbl. per day, or only 30 per cent larger than the average yearly increase during the war period.

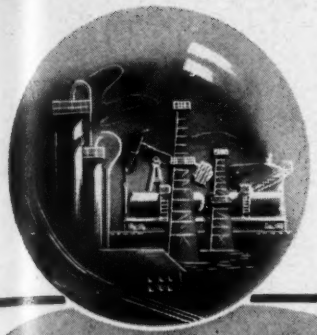
Average Yearly Postwar Gains

On the other hand, the average yearly postwar gains outside the United States have been six times those of the war years. The average annual increases recorded for these countries were 55,000 bbl. daily in the 1938-45 period and 339,000 bbl. daily in the 2-year postwar period. The records of the last 2 years indicate that the proven, but undeveloped, areas in other countries are large enough to continue to provide increases over the next few years which will be greater than the gains expected in the United States.

The largest volume gain outside the United States was in Venezuela where the output in 1947 was 122,500 bbl. daily above 1946 and 671,500 bbl. per day higher than in 1938. Important increases were also recorded for Saudi Arabia, Kuwait, and Iran, all in the Persian Gulf area. The 1947 production in the entire Persian Gulf area was 156,800 bbl. per day more than in 1946 and 529,800 bbl. daily greater than in 1938.

Exploration and drilling programs in Mexico and such South American countries as Argentina, Brazil, Chile, Colombia, and Peru were being pushed to expand and develop their petroleum resources. A large expansion in exploration and drilling in Canada was assured by the Leduc discovery in Alberta.

Large-scale expansion plans for the Middle East should provide some production increases as early as 1948. These increases will be needed to supply the fuel required in European reconstruction plans



REVIEW - FORECAST

WORLD RESERVES

71.3 Billion Barrels Constitute Total Proven Reserves of World

by Warren W. Burns

WORLD proven reserves of crude oil at the beginning of 1948 amounted to 71,312,000,000 bbl. Of this total, 23,737,000,000 bbl. were located in the United States, 10,975,000,000 in other countries of the Western Hemisphere, and 36,600,000,000 bbl. were in the Eastern Hemisphere. On a comparative basis, the Western Hemisphere has a little less than half the proven reserves and the United States about one-third.

The 1947 increases in Venezuela and the United States accounted for the major part of the Western Hemisphere gains, and the development of existing fields in the Persian Gulf area boosted the reserves in the Eastern Hemisphere.

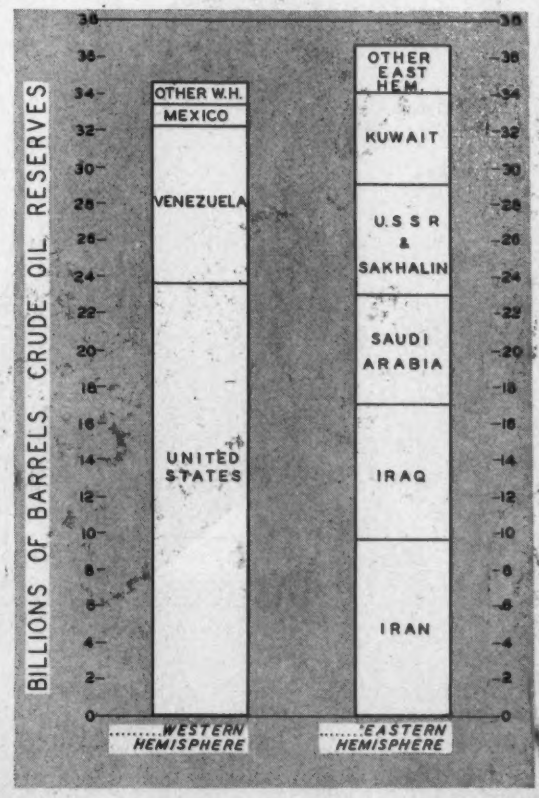
The reserves in the United States are 12.8 times as great as our total crude production in 1947, compared with other Western Hemisphere reserves that are 19 times crude production and with the proven reserves of the Eastern Hemisphere where the ratio of reserves to production is 51 to 1. The Persian Gulf area, taken separately, has reserves equal to 91 times the 1947 production.

Before any additions can be made to reserves for the United States in 1948, almost 2 billion barrels of crude will have to be found to replace the production of the year. This will come from new discoveries and from extensions and revisions in existing fields. The other crude-producing countries of the world, now holding about two-thirds of total reserves, will have to replace less than 1½ billion barrels of production in 1948 before additions can be made to reserves.

This condition plus the fact that the semiproven reserves of the Persian Gulf area are much greater than the generally used totals, indicates that the increases in the Middle East for the next few years will be greater than in any other area.

PROVEN OIL RESERVES OF WORLD

	Crude-oil reserves (million bbl.)	Percentage of world total
Western Hemisphere:		
United States	23,737	33.29
Venezuela	8,500	11.92
Mexico	1,200	1.68
Colombia	500	.70
Argentina	200	.28
Peru	200	.28
Trinidad	200	.28
Canada	125	.18
Ecuador, Bolivia, Brazil, Cuba and Chile	50	.07
Total Western Hemisphere	34,712	48.68
Eastern Hemisphere:		
Iran	9,500	13.33
Iraq	7,500	10.52
Saudi Arabia	6,000	8.41
Russia and Sakhalin	6,000	8.41
Kuwait	5,000	7.01
Netherlands East Indies	800	1.12
Romania	500	.70
Bahrein Island	300	.42
Qatar	250	.35
British Borneo	200	.28
Burma	100	.14
Netherlands New Guinea	100	.14
India, Japan, China	100	.14
Egypt	100	.14
Other Europe	150	.21
Total Eastern Hemisphere	36,600	51.32
World total	71,312	100.00



National's IDEAL

Faster •

Left Illustration—Type DA-30 with lower clevis. National's largest connector for handling the heaviest drilling strings. Made of IDEAL Electric Forged Steel to provide positive assurance of ample strength for all drilling operations.

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Right Illustration—Type D-6. For lighter loads. Especially adaptable for derricks where lack of room makes use of conventional hook difficult.

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NATIONAL BLUE PRODUCTS

Connectors

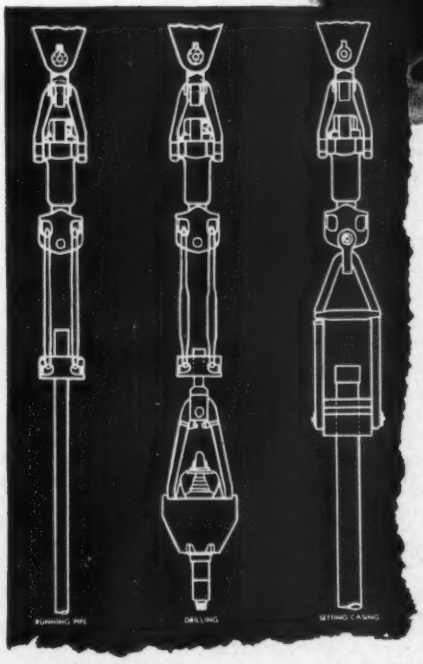
• Safer • More Convenient

GOING IN AND COMING OUT OF THE HOLE

IDEAL Rotary Connectors are earning widespread acceptance among drillers everywhere because they are far superior to all types of rotary hooks. IDEAL Connectors meet the urgent need for faster, safer, more convenient drilling tools and they include these outstanding advantages.

1. **Narrow and compactly built.**
2. **Elevator links vertically and independently hung from yoke, for more flexibility and better balance.**
3. **High point of suspension to give stability.**
4. **All load carrying parts are of IDEAL Electric forged steel.**
5. **Heavy yoke spring—two ball bearings assure easy rotation.**
6. **Clevis to connect single bail elevator or swivel.**
7. **Yoke may be locked in 8 different positions.**
8. **Provides method of carrying swivel below elevator links to prevent bumping or interfering with rotary hose.**

Contact your nearby National Supply Store for more complete details on IDEAL Rotary Connectors and their companion equipment, including the correct Crown and Traveling Blocks to meet specific needs.



BRIEF SPECIFICATIONS

Type	D-6	DA-30
Rating, tons	60	300
Number of Locking Positions	8	8
Bail Cross Section, inches	2 x 5	5 x 7
Bail Pin Diameter, inches	1¾	7
Radius of Bail at Bend, inches	3	4
Clearance Between Bail and Cap, inches	7	15
Bail Contact to Elevator Link Contact, inches	58¾	87
Spring Travel, inches	7	8
Shank Diameter, inches	3¾	6½
Maximum Radius at Elevator Link Contact, inches	1⅜	2¾
Clevis Hole Diameter, inches	2½	5
Length Overall, Less Lower Clevis, inches	70½	104
Length Overall, with Traveling Block and Connector Coupling in Combination, inches	111¾	....
Width Overall, inches	19½	29¾
Net Weight, pounds	1075	4284

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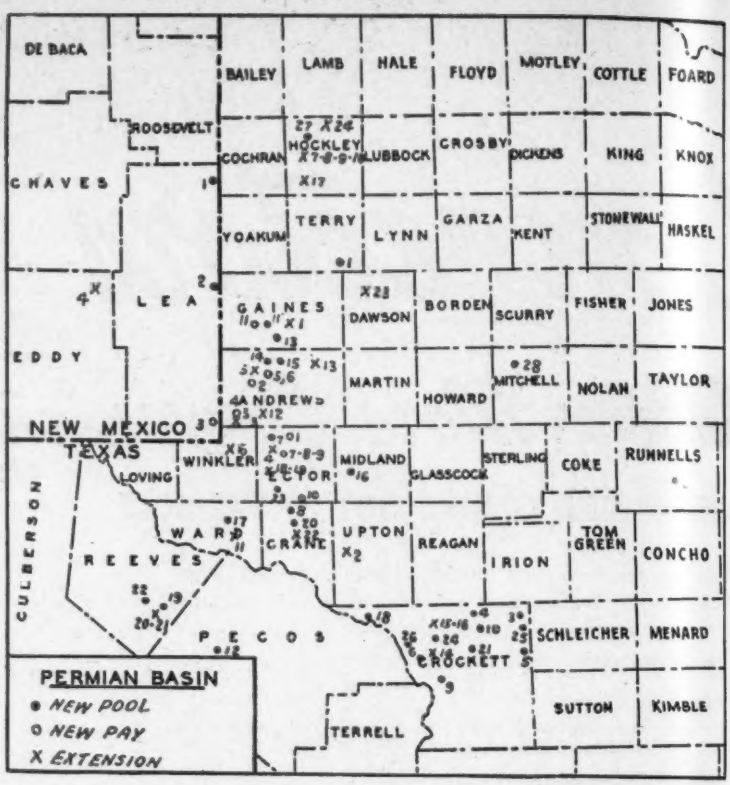
NEW RESERVES

Discoveries, New Pays, and Extensions in 1947— Size and Location

IN the tables and on the maps that follow, a preliminary appraisal is given for the results of the greatest wildcatting campaign the industry ever conducted in a single year. Out of a total of 5,461 wildcats completed, 864 were rated as successful in finding oil, while 248 were succesful gas-well completions.

Elsewhere in this issue the discovery wells for the new fields are listed, giving the name of the pool, location, company and lease name, available information on initial production, and pay zone from which production was obtained.



WEST TEXAS

Discoveries

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(1) Adair, Terry; San Andres	1,200	50	6,000
(2) Ballinger, Runnels; Bend	40	7	100
(3) Block 39, Crockett; Detrital	80	10	240
(4) Block 37, Crockett; Grayburg	40	30	160
(5) Childress, Crockett; Ellenburger	40	30	240
(6) Clara Couch, Crockett; Wolfcamp	40	17	200
(7) Frank-Cowden-Ellenburger, Ector; Ellenburger	40	75	400
(8) Jordan Connell, Crane; Clear Fork	40	25	160
(9) Lancaster Hill	80	7	200
(10) Midway Lane, Crockett; Ellenburger	320	45	1,600
(11) North Riley, Gaines; Clear Fork	40	30	160
(12) Oates, Pecos; Rustler	40	5	120
(13) Riley, Gaines; Clear Fork	40	90	160
(14) Shafter Lake, Andrews; San Andres	40	80	160
(15) Shafter Lake, Devonian; Andrews, Devonian	40	40	240
(16) South Midland, Midland; Wolfcamp	40	65	160
(17) Spencer Yates, Ward; Yates	40	...	200
(18) Tippett, Crockett; Wolfcamp	80	15	320
(19) Tunstill, Reeves; Delaware	120	40	600
(20) University-Waddell; Crane, Ellenburger	80	260	800
(21) Vaughn, Crockett; San Andres	40	1	160
(22) Verhalen, Reeves; Wolfcamp	80	100	320
(23) Yarbrough & Allen, Ector; Ellenburger	40	105	320
(24) Unnamed, Crockett; Grayburg	40	...	160
(25) Unnamed, Crockett; Ellenburger	40	...	240
(26) Unnamed, Crockett; Soma gas	...	17	...
(27) Unnamed, Hockley; San Andres	40	40	160
(28) Unnamed, Mitchell; limestone	40	...	100
Total	2,800		13,680

New Pays

(1) Andector, Ector; Clear Fork	200	85	800
(2) Block 12, Andrews; Devonian	80	26	480
(3) Dollar Hide, Andrews; Silurian	40	20	120
(4) Dollar Hide, Andrews; Ellenburger	40	150	400
(5) Fullerton Ellenburger, Andrews; Wolfcamp	40	30	160
(6) Fullerton Ellenburger, Andrews; Devonian	40	160	240
(7) Goldsmith, Ector; Devonian	40	10	240
(8) Goldsmith, Ector; Ellenburger	80	40	800
(10) Jordan, Ector; Ellenburger	40	4	400
(11) North Riley, Gaines; San Andres	40	40	200
Total	640		3,840

Extensions

(1) Adair, Gaines; (2) Crane-Cowden, Upton; (3) Dollar Hide, Andrews; (4) Frank-Cowden-Ellenburger, Ector; (5) Fullerton, Andrews; (6) Keystone Colby, Winkler; (7), (8), (9), (10) Levelland, Hockley; (11) Lion, Ward; (12) Martin, Andrews; 13 Means, Andrews; (14) Olson, Crockett; (15), (16) Shannon, Crockett; (17) Slaughter, Hockley; (18), (19) TXL Devonian, Ector; (20), (21) Tunstill, Reeves; (22) University-Waddell, Crane; (23) Welch, Dawson; (24) Yellowhouse, Hockley.

SOUTHEAST NEW MEXICO

Discoveries

(1) Unnamed, Lea; San Andres	80	20	320
(2) Unnamed, Lea; San Andres	80	100	380
Total	160		700

New Pay

(3) Justice, Lea; Glorietta	40	30	80

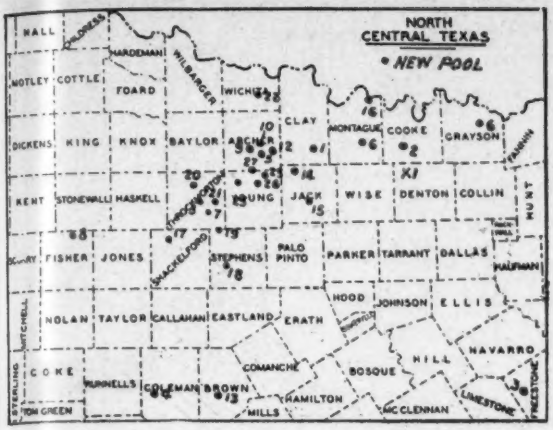
Extension

(4) Grayburg-Jackson, Eddy; Loving sand	120	20	...

NORTH AND WEST CENTRAL TEXAS

Discoveries

(1) Acme, Clay; Strawn	120	6	240
(2) Atcheson, Cooke; Ellenburger	40	52	160
(3) Bailes, Throckmorton; Caddo	120	...	360
(4) Bead Mountain, Coleman; Fry	80	4	320
(5) Burns ABC, Archer; Caddo	80	14	240
(6) Magee, Montague; Caddo	80	20	240
(7) Record, Throckmorton; Mississippi	120	7	240
(8) Roundtop, Fisher; Caddo	40	20	120
(9) Unnamed, Archer; Gunsight	80	20	240
(10) Unnamed, Archer; Caddo	80	10	240



Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(11) Unnamed, Archer; sand	40	12	120
(12) Unnamed, Archer; Caddo	80	33	240
(13) Unnamed, Brown; Marble Falls	40	27	160
(14) Unnamed, Jack; Caddo	80	24	240
(15) Unnamed, Jack; sand	40	14	120
(16) Unnamed, Montague; sand	40	12	120
(17) Unnamed, Shackelford; Ellenburger	120	14	480
(18) Unnamed, Stephens; Caddo	40	5	120
(19) Unnamed, Stephens; Mississippi	40	10	100
(20) Unnamed, Throckmorton; Mississippi	80	15	200
(21) Unnamed, Throckmorton; Caddo	80	15	240
(22) Unnamed, Wichita; Caddo	120	10	360
(23) Unnamed, Young; Caddo	180	20	540
(24) Unnamed, Young; sand	40	8	120
(25) Unnamed, Young; Mississippi	180	12	540
(26) Unnamed, Young; Caddo	80	20	240
(27) Unnamed, Young; Caddo	80	19	240
Total	2,200		6,580

TEXAS GULF COAST

Discoveries

(1) Bloomington, Victoria; Heterostegina	160	5	320
(2) Brandt, Goliad; Wilcox (Luling)	80	5	80
(3) Chriesman, Burleson; (3,440)	40	10	40
(4) East Humble, Harris; (7,782) (c)	160	8	160
(5) East McFaddin, Victoria; (5,935)	40	7	80
(6) East Runge, Karnes; Wilcox (Luling) (c)	160	5	160
(7) Evergreen, San Jacinto; Wilcox	80	20	80
(8) Foester, Calhoun; Frio (c)	160	21	160
(9) Gist, Newton; Lower Frio	40	2	120
(10) Gobbler Creek, Wharton; Frio	40	24	40
(11) Green Lake, Calhoun; Marginulina	40	28	40
(12) Hecar, Refugio; Catahoula	40	8	40
(13) Heinzeville, Goliad; Wilcox (Slick) (c)	160	10	160
(14) Holzmark, Bee; Hockley	40	38	40
(15) Hord's Creek, Goliad; Wilcox (Luling) (c)	160	20	160
(16) Jergins, Chambers; Frio	40	4	160
(17) League City Heights, Galveston; (9,654)	80	4	80
(18) Lind, Jackson; (7,059)	80	2	80
(19) Manvel SE flank, Brazoria; (4,590)	40	14	80
(20) Matagorda Bay, Calhoun; Miocene	40	8	80
(21) Meyersville, DeWitt; Wilcox (c)	160	13	160
(22) Minoak, Bee; Wilcox (Slick) (c)	160	20	160
(23) North Vidor, Orange; Hackberry (c)	160	6	160
(24) Orange (Hackberry), Orange; Hackberry	80	11	80
(25) Roche, Refugio; Frio	600	4	600
(26) Saratoga NW flank, Hardin; (7,314)	80	24	80
(27) South Call, Newton; (10,642)	40	12	40
(28) South Lucky, Matagorda; (9,236)	40	2	80
(29) Tidehaven South, Matagorda; (8,530)	80	5	160
(30) West Bernard, Wharton; (6,708) (C)	160	15	320
(31) West Cosden-Mackhank (Dirks-Wilcox), Bee; Wilcox (Mackhank)	80	6	160
(32) West Esperson, Harris; Yegua (c)	160	8	160
(33) Wurtsbaugh, Tyler; Wilcox	80	8	80
(34) Wyrick, Refugio; (4,944)	80	4	80
(35) Yoward, Bee; Wilcox (Slick)	160	10	320
Total	3,800		4,800

New Pays

(2) Batson, Hardin; Cockfield-Yegua	40	10	80
(1) Bloomington, Victoria; Discorbis	80	10	80
(3) Boling, Wharton; Frio	40	4	80
(5) Bonnie View, Refugio; Frio (2)	80	10	160
(6) Burnell-Wilcox, Karnes; Massive Wilcox	80	4	80
(7) Clay West, Live Oak; Wilcox (Luling) (C)	160	14	160
(8) Coletto Creek, Victoria; (4,320)	40	2	40
(9) Columbus, Colorado; (8,375)	40	10	40
(4) East Humble, Harris; (8,334) (c)	160	8	160
(10) El Campo, Wharton; (6,093) (c)	160	7	160
(11) Englehart, Colorado; (8,882) (c)	160	14	160
(12) Glendale, Trinity; Woodbine (C)	160	40	160
(13) Green, Karnes; Wilcox (Slick)	80	24	80
(14) Hampton, Hardin; (7,312)	80	3	80
(15) Hankamer, Liberty; (7,110)	80	12	160
(17) Harmon (Ganado), Jackson; Frio	40	6	80
(18) High Island, Galveston; (7,141)	80	18	160
(19) Hockley, Harris; (3,577)	40	20	80
(20) Humble, Harris; Miocene	40	10	120
(16) Jergins, Chambers; Frio	40	6	120
(21) Kittie West, Live Oak; Wilcox (Luling) (c)	160	7	160
(22) La Rosa, Refugio; Frio	40	5	80
(24) LaSalle, Jackson; Frio (c)	160	16	160
(25) Lolita, Jackson; Vicksburg	80	6	80
(27) Louise, Wharton; (6,320) (c)	160	4	160
(28) Nada, Colorado; (9,910) (c) (2) (6,216) (c)	320	8	320
(29) North Cheek, Jefferson; (8,180) (c)	160	10	160
(30) North La Rosa, Refugio; Frio (c)	160	9	160
(23) North Vidor, Orange; (3,932) (c)	160	7	160
(31) Pickett Ridge, Wharton; (4,611)	40	4	80
(32) Pierce Junction, Harris; (7,564)	40	6	80
(26) Saratoga, Hardin; (4,042)	40	12	80
(33) Scoby Lake, Brazoria; (10,488) (c)	160	16	160
(34) South Hutchins, Wharton; Frio (3)	120	7	360
(35) South Liberty, Liberty; Yegua	40	10	80
(36) Stratton Ridge, Brazoria; (4,965)	40	21	80
(37) Sugar Valley, Matagorda; Frio	160	5	160
(38) Texana, Jackson; Frio (c)	160	5	160
(39) West Columbia, Brazoria; (6,633)	80	7	160
(40) West Orange, Orange; Miocene	40	10	80
(41) West Pridham Lake, Victoria; Catahoula	40	3	80
(42) Yoakum, Lavaca; Wilcox (c)	160	40	160
Total	4,200		5,400

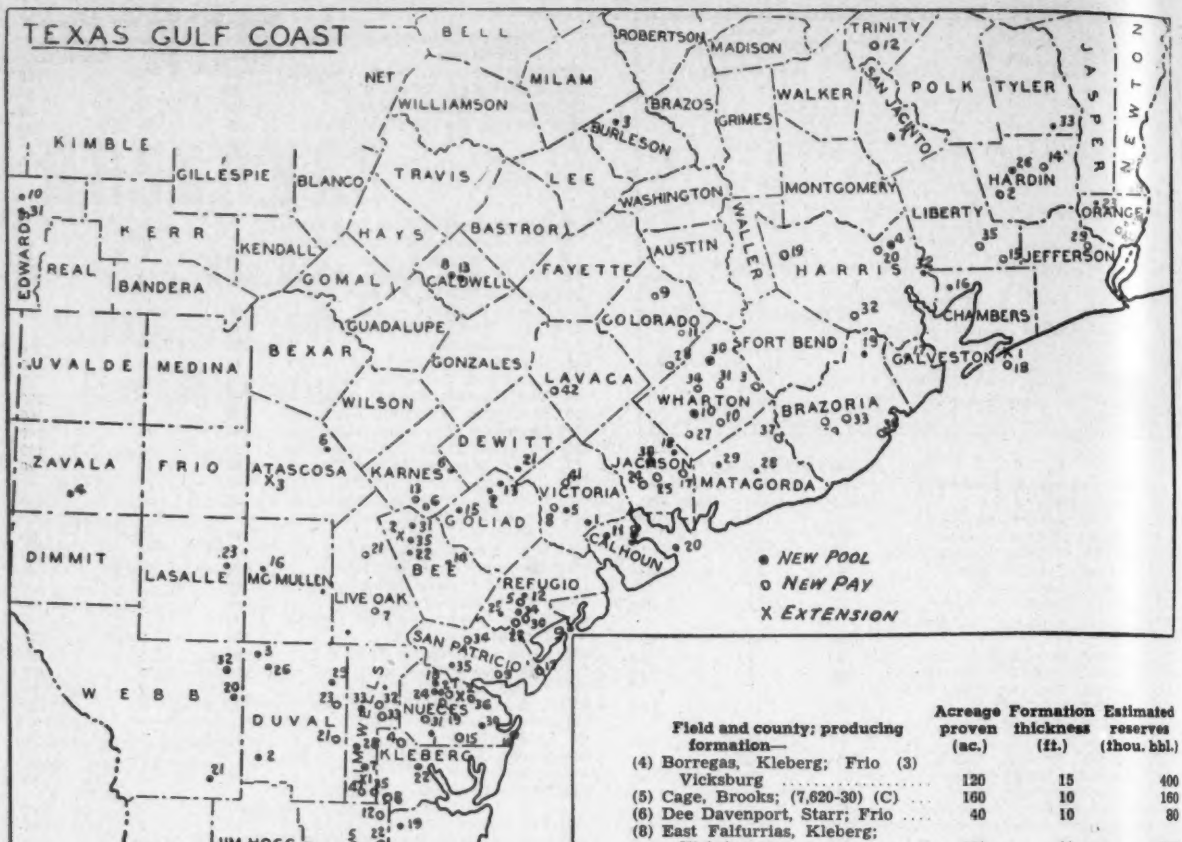
Extensions

(1) High Island, Galveston; (7,125)	80	21	160
(2) Yoward, Bee; (7,485)	80	25	160

SOUTHWEST TEXAS

Discoveries

(1) Bishop, Nueces; (7,133)	80	3	80
(2) Cam, Duvall; (2,650-62)	40	12	80
(3) Charmousca-Wilcox, Duval; Wilcox	160	20	160
(4) Del Monte, Zavala; San Migual (Taylor)	80	31	80
(5) East Alta Mesa, Brooks; (6,315-24)	40	9	40
(6) East Imogene, Atascosa; Edwards	40	11	40
(7) East Premont, Jim Wells; Frio	40	5	80
(8) Fentress, Caldwell; Austin	40	58	40
(9) Fulton Beach, Aransas; Oligocene	80	10	160
(10) Holman, Edwards; Ellenburger	40	32	80
(11) Jay Simmons, Starr; Vicksburg	40	5	80
(12) Joe Moss, Zapata; (760-71)	40	11	40
(13) Joliet (New Burdette Wells), Caldwell; Austin	40	48	80
(14) Kennard, Starr; Basal Frio	40	12	320
(15) Lacy, Hidalgo; Frio	40	10	80
(16) Little Alamo, McMullen; Queen City	40	7	80
(17) Los Indios, Hidalgo; (7,113-22)	80	9	80
(18) Mantor-Briggs, Nueces; Frio	40	5	80



Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(19) McGill, Kenedy; Frio-Vicksburg	(Now shut in; no reserves)		
(20) Nicholson, Webb; Wilcox	40	3	40
(21) North Aviator, Webb; Mirando	40	10	160
(22) North Ricardo, Kleberg; Frio	40	6	40
(23) Quintanilla, LaSalle; Carrizo	40	20	40
(24) Rivers, Nueces; Frio	160	11	160
(25) Cecil (Robinson), Hidalgo; Frio	40	3	80
(26) Seventy-Six, Duval; Cole sand	40	5	40
(27) Sommer, Nueces; Frio	40	6	80
(28) South Haldeman, Jim Wells; Frio	80	15	120
(29) Squire, Duval; Government Wells	80	3	240
(30) Viola, Nueces; Frio	40	10	40
(31) Wardlow, Edwards; Ellenburger	40	11	40
(32) Watkins, Webb; Mirando	40	13	80
(33) West Alice, Jim Wells; Vicksburg	160	8	160
(34) Javelina, Hidalgo; (5,389-5,421)	40	32	80
(35) New Angelita, San Patricio; (5,976-98)	40	22	80
Total	1,960		3,160
New Pays			
(2) Agua Dulce, Nueces; Frio (3)	120	27	360
(3) Alta Mesa, Brooks; (Frio (3)	120	15	360
(1) Bishop, Nueces; Vicksburg	80	34	80

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(4) Borregas, Kleberg; Frio (3) Vicksburg	120	15	400
(5) Cage, Brooks; (7,620-30) (C)	160	10	160
(6) Dee Davenport, Starr; Frio	40	10	80
(8) East Falfurrias, Kleberg; Vicksburg	160	19	160
(9) East White Point, San Patricio; Frio (2)	160	18	160
(7) East Premont, Jim Wells; (4,688-95)	40	7	80
(10) Flour Bluff, Nueces; Frio-Vicksburg (C)	160	10	160
(12) Gyp Hill, Brooks; Frio	160	20	160
(11) Jay Simmons, Starr; (6,423-33)	40	10	80
(13) Kelsey-Deep (South), Starr; (5,400 and 5,960)	80	22	80
(14) La Gloria, Jim Wells; Frio and Vicksburg (7) (1C)	180	46	600
(16) Little Alamo, McMullen; Carrizo-Wilcox	40	3	40
(15) Luby, Nueces; Frio (2)	160	14	160
(17) Midway, San Patricio; Frio (2)	80	7	160
(18) McAllen, Hidalgo; Vicksburg (C)	160	90	320
(19) North Minnie Bock, Nueces; Frio	40	9	80
(20) North Sun, Starr; (6,470 and 7,022) (2)	200	25	200
(21) Piedras Pintas, Duval (2,182 and 3,152) (2)	80	13	160
(22) Pita, Brooks; (7,771)	40	9	40
(23) Robinson, Duval; (3.915)	40	11	40
(27) Sommer, Nueces; (5,896)	40	8	40
(28) South Haldeman, Jim Wells; Frio (2), Vicksburg	80	14	160
(30) South Kelsey, Starr; Jackson	40	11	40
(29) Squire, Duval; Strake & Yegua (2)	80	15	80
(31) Stratton, Nueces; Frio (5,875)	40	12	80
(32) Tom Graham (East Alice), Jim Wells; Frio (C)	160	11	160
(33) West Magnolia City, Jim Wells; Frio	40	4	40
(34) West Sinton, San Patricio; Oakville, Frio	80	17	80
(35) Wilson, Jim Wells; Vicksburg (C)	160	12	160
(36) Robstown, Nueces; (5,046)	40	8	80
Total	3,220		5,040
Extensions			
(1) Blucher, Jim Wells; Vicksburg	80	6	160
(2) Agua Dulce, Nueces; (5,095-99)	40	4	120
(3) Charlotte, Atascosa; Navarro	40	10	80
Total	160		360

SOUTH LOUISIANA

Discoveries

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(1) Bivens, Beauregard; Yegua (Cockfield)	120	36	600
(2) Block 32, Terrebonne; Miocene	40	16	40
(3) East Bancroft, Beauregard; Cockfield	160	5	160
(4) East Perkins, Beauregard; Lower Marginulina	40	8	80
(5) Four Isle Dome, Terrebonne; (8,978-94	240	11	240
(6) Holmwood, Calcasieu, Lower Frio (Hackberry)	560	20	560
(7) Kaplan, Vermilion; Oligocene	80	14	80
(8) Moss Lake, Calcasieu; Marginulina	80	4	80
(9) Mud Lake, NE, Cameron; Miocene (C)	320	70	320
(10) Napoleonville, South flank, Assumption; (5,368-72) (C)	80	4	80
(11) Queen Bess Island, Jefferson; Miocene (C)	120	25	120
(12) Savoy, St. Landry; Oligocene	80	15	80
(13) Scott-Duson, Lafayette; Miocene (C)	120	16	120
(14) South Barataria, Jefferson; Miocene (C)	80	65	80
(15) Southwest Eola, Avoyelles; Wilcox	120	10	120
(16) Warren, Vermilion; (7,070-73)	80	3	80
Total	2,320		2,840

New Pays

(1) Alliance, Plaquemines; Miocene	80	5	80
(2) Avery Island, Iberia; (10,310-10,360)	80	50	160
(3) Barataria, Jefferson; (8,930-38)	80	8	160
(4) Bayou Choupique, Calcasieu; Marginulina sand stringer (c)	160	4	160
(6) Bon Air, Jefferson Davis; (10,-380-10,396) (c)	160	16	160
(7) Cameron Meadows, Cameron; Miocene (C)	160	10	160
(8) Crowley, Acadia; (11,054-11,072) (c)	160	18	160
(10) Dave Haas, Avoyelles; (8,638)	80	10	80
(11) Delta Duck, Plaquemines; Miocene (c)	80	36	160
(12) Des Allemands, Lafourche; (8,408-12)	80	4	80
(13) English Bayou, Calcasieu; Miocene	80	4	80
(5) Four Isle, Terrebonne; (13,455-13,475) (c)	160	20	160
(14) Houma, Terrebonne; (11,930-11,950) (c)	160	20	160
(15) Iota, Acadia; (8,814-22)	80	8	320
(16) Iowa, Calcasieu; Lower Miocene (Hackberry) (c)	160	2	160
(17) Lake Hermitage, Plaquemines; (12,022-36) (c) (11,895-954)	240	73	240
(18) Laurel Ridge, Iberville; Oligocene (C)	160	6	160
(19) Leeville, Lafourche; (10,535 and 8,300) (2)	80	50	160
(20) Lockport, Calcasieu; Miocene (2)	120	16	120
(21) Longville, Beauregard; Cockfield	80	16	80
(9) Mud Lake, Cameron; Miocene (c)	200	60	200
(22) Plumb Bob, St. Martin; Miocene	40	22	80
(23) Raceland, Lafourche; (10,010)	80	16	80
(24) St. Martinville, St. Martin; 4,686 and 4,894) (2)	80	24	160
(25) South Jeanerette, St. Mary; Miocene	80	30	80
(26) Tigre Lagoon, Vermilion; (11,638) (c)	160	17	160
(27) Venice, Plaquemines; (12,552)	80	16	160
(28) Vinton, Calcasieu; Marginulina	40	8	40
(29) Week's Island, Iberia; (12,380, 12,911, 9,250, 11,662) (4)	200	70	400
(30) White Castle, Iberville; (3,740)	40	10	80
Total	3,400		4,440

EAST TEXAS

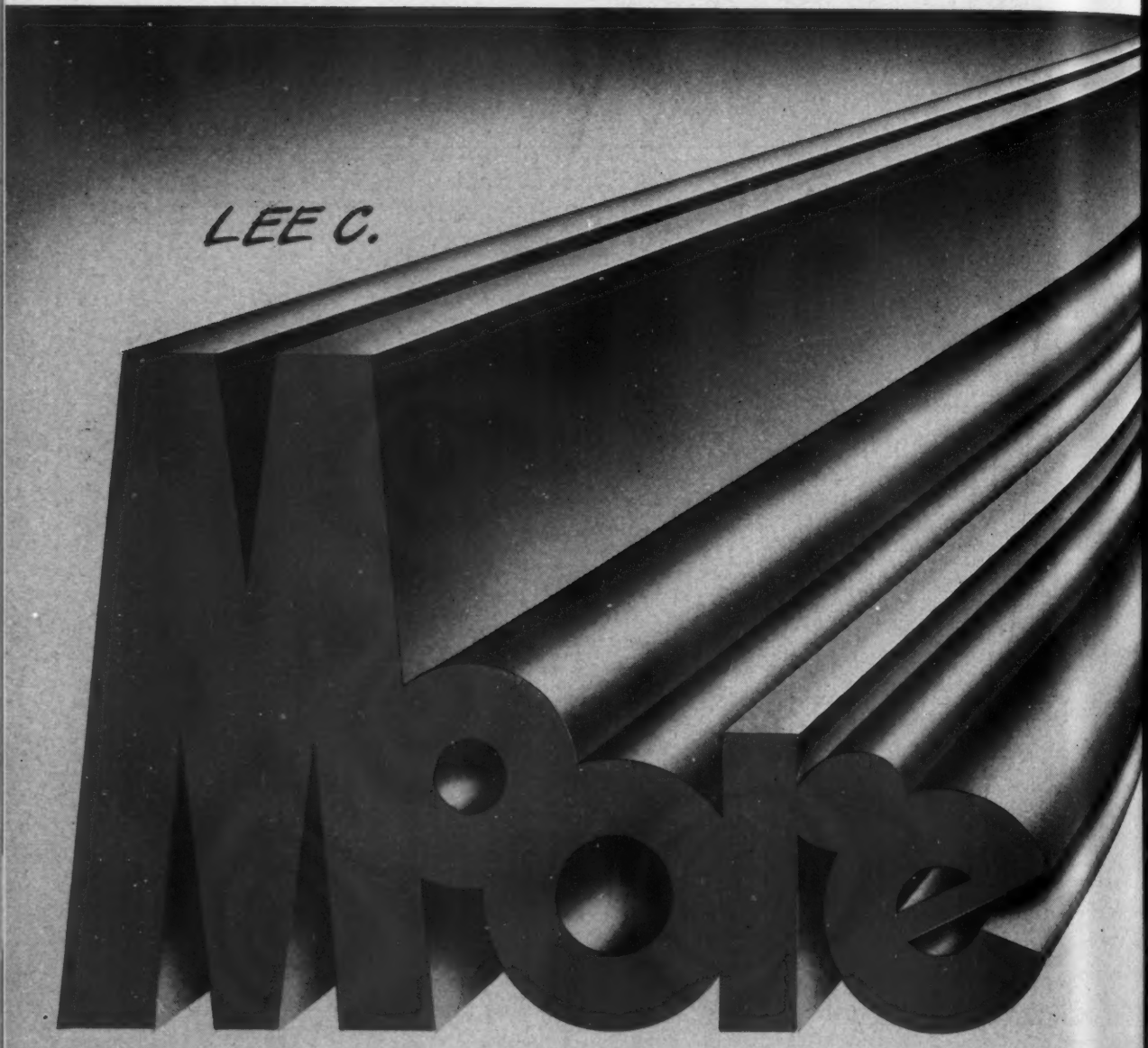
Discoveries

(1) Blackfoot, Anderson; Pettit	40	20	120
(2) Como, Hopkins, Eagleford	40	15	120
(3 Moody, Freestone, Woodbine	40	10	200
(4) San Augustine, San Augustine; Pettit	40	30	80
(5) Scottsville, Harrison; Travis Peak	40	6	120
(6) Sherman, Grayson; sand	80	8	240
(7) Yantis, Wood; Rodessa	40	18	120
(8) Unnamed, Cherokee; Bacon	40	14	80
(9) Unnamed, Cherokee; Woodbine	40	4	200
(10) Unnamed, Harrison; Pettit	40	80	80
Total	4,400		1,360

New Pays

(1) Carthage, Panola; Lower Pettit	120	12	400
(2) Chapel Hill, Smith; Travis Peak	40	208	120
(3) Chapel Hill, Smith; Paluxy	40	21	120

Universally Accepted . . . .

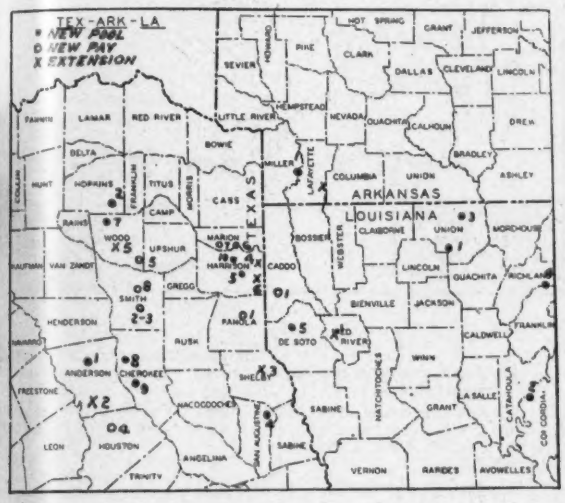


MOORE Equipment, for certain world areas, is built to our specifications and furnished by: THE OIL WELL ENGINEERING COMPANY, LTD., STOCKPORT, ENGLAND.

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(4) Grapeland, Houston; sub-Clarksville	40	11	120
(5) Hawkins, Wood; Rodessa	40	45	80
(6) Jefferson-Rodessa; Marion, Pettit	40	22	120
(7) Lassater, Marion; Travis Peak	120	14	240
(8) Sand Flat, Smith; Massive anhydrite	40	20	120
Total	480		1,320

Extensions

(1) Bolivar, Denton; (2) Elkhart, Anderson; (3) Huxley, Shelby, (4) Longwood, Harrison; (5) Quitman, Wood; (6) Waskom, Harrison.



NORTH LOUISIANA

Discoveries

(1) D'Arbonne, Union; Bodcaw	40	15	120
(2) Jonesville, Catahoula; Tuscaloosa	40	14	120
(3) Ora, Union, Nacatoch sand	400	20	1,200
(4) Unnamed, Richland, gas sand	40	5	..
(5) Unnamed, DeSoto; Rodessa	40	12	80
Total	560		1,520

New Pay

(1) Longwood, Caddo; Pettit	120	..	360

Extension

(1) Red River-Bull Bayou, Red River; Eagleford sand	40	2	....

ARKANSAS

Discovery

(1) Cypress Lake, Miller; Glen Rose	80	10	160

New Pay

(1) Fouke, Miller; Kilpatrick	160	14	320

Extension

(1) McKamie, Lafayette, Smackover	40	10	....

OKLAHOMA

Discoveries

(1) Antioch, Garvin; sand	120	8	500
(2) Antioch, Northeast, Garvin; Bromide	40	24	175
(3) Antioch, Southeast, Garvin; sand	40	21	150
(4) Asher, South, Pontotoc; Wanette sand	40	6	100
(5) Brock, West, Carter; Pennsylvanian	40	14	125
(6) Camp, Northwest, Stephens; Springer sand	80	22	325
(7) Ceres, South, Noble; Bartlesville	200	2	750
(8) Ceres, Southeast, Noble; Bartlesville	440	25	1,750
(9) Council Creek, Southwest, Payne; Bartlesville	40	26	250
(10) Coyle, South, Logan; Layton sand	80	24	300
(12) Daggett, Southeast, Lincoln; Prue sand	160	52	500
(13) Deep Fork, South, Creek; Tanneha sand	40	12	100
(14) Duncan, Northeast, Stephens; sand	40	18	75
(15) Elmore, Northeast, Garvin; Deese sand	520	30	2,500
(16) Edmond, Northeast, Oklahoma; Bartlesville	1,000	40	5,000
(17) Eola, Garvin; Bromide sand	40	142	100
(18) Eola, Southwest, Garvin; Arbuckle	80	18	175
(19) Fish, East, Hughes; Booch	40	15	85
(20) Goodnight, Northeast, Payne; Red Fork sand	40	16	75
(21) Iconium, Northwest, Logan; second Wilcox	40	22	175
(22) Ingalls, Payne, Mississippi lime	720	43	2,000
(23) Johnson-Cooper, Stephens; sand	40	25	100
(24) Kaw, South, Osage; Mississippi chat	320	17	1,250
(25) Keokuk, Northeast; Okfuskee; Calvin	80	15	225
(26) Laffoon, West, Lincoln; Simpson dolomite	80	58	150
(27) Lima, Southeast, Seminole; Cromwell	200	3	500
(28) Lindsay, East, Garvin; Bois d'Arc and Chimney Hill	2,500	40	20,000
(29) Lindsay, Northeast, McClain; Chimney Hill	2,000	102	14,000
(30) Longview, Northeast, Noble; Bartlesville	80	45	325
(31) Marion, Northwest, Oklahoma; Bois d'Arc	40	56	100

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(32) Maysville, South, Garvin; Pennsylvanian	40	22	125
(33) Meno, Southeast, Major; second Wilcox	160	119	600
(34) Munger, Oklahoma; Hunton lime	80	25	175
(35) New Hope, Southeast, Garvin; Deese sand	40	12	100
(36) Panther Creek, Garvin; Deese sand	40	22	125
(37) Peckham, Southwest, Kay; Burgess sand	80	34	200
(38) Perkins, South, Lincoln; Hunton lime	40	13	100
(39) Perry, Northwest, Noble; sandy dolomite	40	12	75
(40) Polo, Southeast, Noble; second Wilcox	120	6	375
(41) Prairie Bell, East, Oklahoma; second Wilcox	40	8	125
(42) Randlett, South, Cotton; sand	160	3	450
(43) Randlett, Southwest, Cotton; sand	560	7	1,750
(44) Ringwood, Southeast, Major; Manning sand	40	23	125
(45) Shawnee Lake, West, Pottawatomie; Wilcox	280	5	1,000
(46) Spaulding Townsite, Hughes; Booch	300	20	1,250
(47) Tyrola, Northwest, Seminole; Lower Allen	40	10	80
(48) Valley Grove, South, Okfuskee; Cromwell	40	10	125
(49) Wetumka, Southeast, Hughes; Cromwell	640	14	2,000
Miscellaneous*	1,240		3,500
Total	9,300		64,140

*Includes (50) Cache Creek, North, Cotton; (51) Cache Creek, West, Cotton; (52) Cache Creek, Northwest, Cotton; (53) Cookietown, East, Cotton; (54) Elk City, Beckham; (55) Light, Beaver; (56) Soldier Creek, Southwest, Cotton; and two unnamed fields.

CALIFORNIA

Discoveries

(1) Bacon Hills, Kern; Oceanic	80	30	200
(2) Belgian Anticline, Kern; Oceanic	160	428	500
(3) Comanche Point, Fresno Chanac & Santa Margarita	40	239	75
(4) Four Deer, Santa Barbara; Miocene	40	255	1,500
(5) Kern Bluff, Kern; Transition	120	103	250
(6) Montalvo West, Ventura; (8,428-72 ft.)	80	44	250
(7) Rosecrans-Athens Northwest, Los Angeles; Miocene 7th and 8th zones	40	538	75
(8) San Ardo, Monterey; (2,133-58 ft.)	80	25	125
(9) San Joaquin, Fresno; Nortonville and Domingene	80	32	200
(10) Sheep Springs, Kern; Oceanic	200	30	750
Total	920		3,925

New Pays

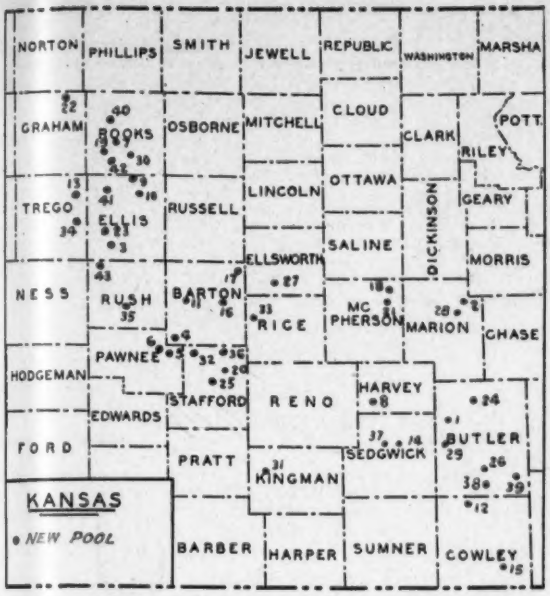
(1) Aliso Canyon, Los Angeles; Del Aliso	40	48	75
(2) Belgian Anticline, Kern; Point of Rocks	160	76	500
(3) Coyote West, Los Angeles; "138" zone	120	200	3,500
(4) Del Valle, Los Angeles; "15" zone	20	800	300
(5) Elwood, Santa Barbara; Sespe	120	29	250
(6) Four Deer, Santa Barbara; Contact	80	60	750
(7) Huntington Beach, Los Angeles; Talbert	20	85	50
(8) Lawndale, Los Angeles; Miocene & schist conglomerate	40	30	75
(9) Long Beach, Los Angeles; De Soto	20	306	250
(10) McDonald Anticline, Kern; Button Bed	40	47	50
(11) Midway-Sunset, Kern; upper Miocene	500	131	2,500
(12) Mountain View, Kern; Schist	40	27	75
(13) Newhall-Potrero, Los Angeles; "4th" zone	40	157	75

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(14) Newport, Los Angeles; "C" zone	500	60	5,000
(15) Salt Creek, Kern; Carneros	200	131	2,000
(16) Ten Section, Kern; Lower Stephens	40	40	75
Total	1,980		15,525

KANSAS

Discoveries

(1) Allen, North, Butler; Mississippian	40	15	120
(2) Antelope, Marion; Mississippi chat	120	58	360
(3) Antonino, Ellis; Arbuckle	160	6	400
(4) Ash Creek, Barton; Arbuckle	760	6	2,280
(5) Ash Creek, South, Pawnee; Arbuckle	240	3	600
(6) Ash Creek, Southwest, Pawnee; Arbuckle	80	12	200
(7) Barry, East, Rooks; Arbuckle	80	3	200
(8) Brandenberger, Harvey; Viola	80	5	160
(9) Burnett, Northwest, Ellis; Arbuckle	1,040	7	5,160
(10) Burnett, South, Ellis; Arbuckle	200	2	600
(11) Carroll, Southwest, Barton; Lansing-Kansas City	160	4	480
(12) Combs, Cowley; Bartlesville sand	640	20	1,920
(13) Cotton, East, Trego; Arbuckle	640	56	1,920
(14) Curry, Sedgwick; Lansing-Kansas City	40	4	80
(15) Doane, Cowley; Mississippian	40	2	80
(16) Ehly, Barton; Arbuckle	40	4	100
(17) Esfield, Barton; Arbuckle	40	4	100
(18) Georob, McPherson; Mississippi lime	480	7	1,200
(19) Gick, Rooks; Arbuckle	40	11	80
(20) Heyen, West, Stafford; Arbuckle	40	3	80
(21) Hoffsommer, McPherson, Mississippi lime	200	20	400
(22) Houston, Graham; Lansing-Kansas City	80	8	240
(23) Irvin, Ellis; Arbuckle	240	7	600
(24) Joseph, Butler; Mississippi chat	40	12	120
(25) Kenilworth, Stafford; Lansing-Kansas City	120	7	240
(26) Kramer-Stern, South, Butler; Viola	40	2	80
(27) Lorraine, North, Ellsworth; Lansing-Kansas City	80	4	160



Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(28) Lost Springs, South, Marion; Mississippian	40	33	100
(29) Marnane, Butler; Mississippian	40	19	80
(30) Paradise Creek, Rooks; Arbuckle	1,080	16	3,240
(31) Pat Creek, Kingman; Viola	200	4	400
(32) Pundsack, Stafford; Arbuckle	40	7	80
(33) Ricks, Southeast, Rice; Arbuckle	40	4	80
(34) Riga, Trego; conglomerate	640	31	1,600
(35) Rush Center, Rush, Arbuckle	160	13	400
(36) Sandago, Stafford; Arbuckle	320	33	800
(37) Schulte, Sedgwick; Simpson	280	4	900
(38) Semisch, Butler; Bartlesville	40	80	100
(39) Shinn, Butler; Mississippi lime	280	10	600
(40) Silvers, Rocks; Arbuckle	640	7	1,600
(41) Solomon, Northeast, Ellis; Arbuckle	160	5	320
(42) Vohs, Northwest, Rooks; Lower Kansas City	240	8	600
(43) Weitzel, Rush; conglomerate	120	12	240
Miscellaneous*	600	...	1,110
Total	10,680		30,210

*Includes (44) Rock Creek, Lyon; (45) Liberal, Southeast, Seward; (46) School Creek, Cowley; and 6 unnamed fields.

ILLINOIS

Discoveries

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(1) Ab Lake, Gallatin; lower Renault	40	16	75
(2) Beman, East, Lawrence; McClosky	120	10	250
(3) Berryville, Shelby; McClosky	200	2	350
(4) Bible Grove, North, Effingham; McClosky	240	10	500
(5) Bone Gap, South, Cumberland, Cypress	240	15	500
(6) Burnt Prairie, South, White, lower O'Hara	40	7	50
(7) Centerville, North, Wayne; Bethel	40	14	75
(8) Concord, Central, White; Aux Vases	120	16	200
(9) Cottonwood, Gallatin; Tar Springs	120	14	250
(10) Divide, East, Jefferson; Aux Vases	40	7	75
(11) Eberle, Effingham; McClosky	150	11	200
(12) Elliotstown, Effingham; Rosiclare	40	8	50
(13) Fairfield, East, Wayne; Aux Vases	40	14	75
(14) Gays, Moultrie; Aux Vases	40	8	75
(15) Half Moon, Wayne, McClosky	80	11	150
(16) Helena, Lawrence; Waltersburg	80	10	175
(17) Herald, East, White; Waltersburg	400	9	700
(18) Hunt City, South, Jasper; McClosky	40	24	75
(19) Inclose, Edgar; Pennsylvania	40	8	80
(20) Iola, South, Clay; McClosky	40	2	50
(21) Iuka, Marion; McClosky	40	7	50
(22) Kenner, North, Clay; Bethel	400	5	1,000
(23) Kenner, West, Clay; Cypress	360	10	750
(24) Lexington, Wabash; McClosky	440	13	1,250
(25) Massilon, South, Edwards; lower O'Hara	40	9	50
(26) Miletus, Marion; Aux Vases	480	4	1,250
(27) Newton, West, Jasper; McClosky	40	25	75
(28) Shelbyville, New, Shelby; Aux Vases	80	8	150
(29) Sorento, New, Bond; Devonian	120	8	250
(30) Stanford, West, Clay; McClosky	100	16	225
(31) Westfield, East, Clark; Pennsylvania	200	8	500
(32) Woburn, South, Bond; Trenton	240	16	450
Total	4,690		10,005

INDIANA

Discoveries

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(1) Birdseye, Crawford; Salem	40	9	50
(2) Cathlinett, Knox; Rosiclare	40	5	50
(3) Coe, Pike; Barlow	40	6	50
(4) College, North, Posey; McClosky	80	32	175
(5) Evansville, Vanderburgh; Pennsylvania	180	20	375
(6) Martin, Vanderburgh; Cypress	80	10	200
(7) Pennville, Jay; Trenton	160	17	300
(8) Orrville, Knox; Bethel	40	11	100
(9) Princeton, North, Gibson; Cypress	240	16	500
(10) Solitude, Posey; Palestine	200	12	500
Total	1,100		2,300

WESTERN KENTUCKY

Discoveries

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(1) Anton, Hopkins; Tar Springs	20	20	50
(2) Buck Creek, McLean; Pennsylvania	40	14	100
(3) Cairo, New, Henderson; Waltersburg	120	15	275
(4) Lewisburg, Logan; McClosky	20	5	50
(5) Mt. Vernon-Ferry, Henderson; Waltersburg	40	6	75
(6) Pettit, Daviess; Tar Springs	40	45	75
(7) Slaughters, Webster; Tar Springs	250	11	600
Total	530		1,225

MISSISSIPPI

Discovery

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(1) Oldenburg, Franklin; Lower Tuscaloosa	80	2	160

Extension

(1) Soso; Jones; Eutaw	80	9	160

ROCKY MOUNTAIN AREA

COLORADO

Discoveries

(1) Chroma, Archuleta; Greenhorn	40	10	10
(2) Maudlin Gulch, Moffat; Morrison	40	121	60
Total	80		70

Extensions

(1) Elk Springs, Moffat; Weber	200	85	800
(2) Powder Wash, Moffat; Wasatch	80	353	160
Total	280		960

WYOMING

Discoveries

(1) Ant Hills, Niobrara; Muddy	40	8	120
(2) Neiber, Washakie; Embar	120	27	2,400
(3) Herrick, Albany; Tensleep	120	53	600
(4) South Fork, Washakie; Embar	40	79	200
(5) Seven Mile, Albany; Muddy	40	56	80
(6) Sand Creek, Washakie; Frontier	160	63	800
Total	520		4,200

New Pays

(1) Quealy, Albany; Tensleep	280	174	1,400
(2) South Spring Creek, Park; Madison	40	144	40
(3) Hidden Dome, Washakie; Tensleep	200	195	600
(4) Hatfield, Carbon; Tensleep	40	167	200
(5) Torchlight, Big Horn; Tensleep	40	95	600
Total	600		2,840

Extensions

Field and county; producing formation—	Acreage proven (ac.)	Formation thickness (ft.)	Estimated reserves (thou. bbl.)
(1) Lamb, Big Horn; Tensleep	160	264	160
(2) Steamboat Butte, Fremont; Tensleep	280	1,055	7,000
(3) Elk Basin, Park; Madison	3,500	812	105,000
(4) Big Sand Draw, Fremont; Tensleep	360	527	14,000
(5) Crook's Gap, Fremont; Lakota	80	300	1,200
(6) Mush Creek, Weston; Newcastle	720	...	2,160
(7) Worland, Washakie; Embar	800	...	16,000
Total	5,900		145,520

MONTANA

Discovery

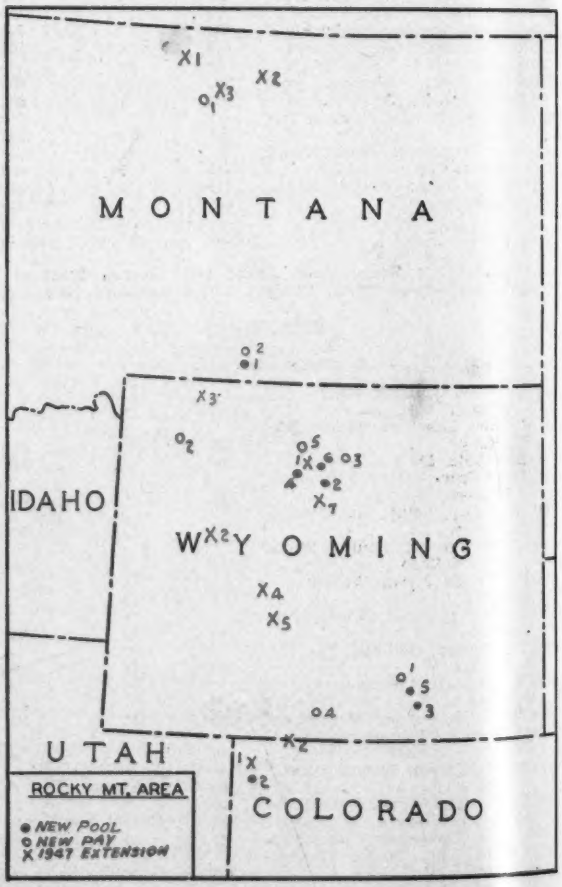
(1) Northwest Elk Basin, Carbon; Madison	160	580	4,000
Total	160		4,000

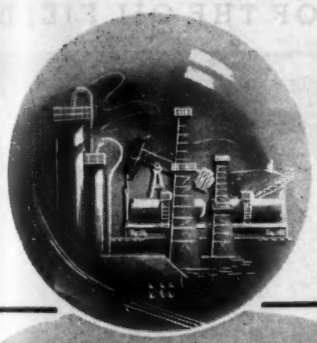
New Pays

(1) Cut Bank, Glacier; Madison	40	57	40
(2) Northwest Elk Basin, Carbon; Frontier	40	75	120
Total	80		160

Extensions

(1) Reagan, Glacier; Madison	80	76	80
(2) Pondera, Toole; Madison	80	10	80
(3) Cut Bank, Glacier; Madison	560	104	2,800
Total	720		2,960





REVIEW - FORECAST

PUMPING

15,688 Wells Scheduled to Go On Pump During Current Year

OIL producers expect to put 15,688 wells on pump during 1948, and will require 14,201 new pumping units to meet their requirements during this period. This is an increase of 2,911 wells over the number placed on pump during the past year. This increase, however, is about in line with the expected increase in drilling during 1948. In 1947, operators completed a total of 33,098 wells and placed 12,777 wells on pump. In 1948, they expect to complete 36,612 wells and place 15,688 on pump. The ratio during both 1947 and 1948, therefore, is 1 well on pump for every 2.3 wells drilled.

Apparently many of the older pumping units now in service, however, are due for replacement by newer and more efficient units. This seems to be the meaning of the data showing that new units required will be close to 90 per cent of the number of wells going on the pump, in contrast to around 85 per cent in the past.

Some indication of the proportion of heavier-type units in the total is given by the division between units costing less than $5,000 each, and those over $5,000. About one-sixth of the units required will fall into the heavier and more costly type. Texas, California, Oklahoma, Kansas, Wyoming, and Louisiana will require the bulk of the larger-type units.

Of total new units required, Texas will require the largest number, with the Appalachian area of New York, Pennsylvania, West Virginia, and Ohio combined accounting for the next greatest number. California will require a large number, according to operators' statements. This group should account for about two-thirds of the requirements. The remainder will be about evenly divided between the three-state group of Oklahoma-Kansas-Illinois, and all other states combined.

THE OIL AND GAS JOURNAL PUMPING SURVEY

	Wells on pump in 1947	Wells to to go on pump in 1948	No. new pump units required for 1948			State per cent of total new units
			Total	Cost under $5,000 unit	Cost over $5,000 unit	
Arkansas	127	226	195	163	32	1.4
California	1,560	2,022	2,062	1,420	642	14.5
Colorado	194	90	90	66	24	0.6
Illinois	670	720	590	590	0	4.2
Indiana	320	256	248	248	0	1.7
Kansas	690	825	785	620	165	5.5
Kentucky	124	104	85	85	0	0.6
Louisiana	665	850	781	666	115	5.5
Northern	605	665	635	540	95	4.5
Southern	60	185	146	126	20	1.0
Michigan	39	161	165	114	51	1.2
Mississippi	98	89	76	6	70	0.5
Montana	100	131	123	114	9	0.9
New Mexico	149	252	243	188	55	1.7
New York	780	1,040	940	940	0	6.6
Ohio	210	226	165	165	0	1.2
Oklahoma	1,050	970	865	645	220	6.1
Pennsylvania	1,636	2,000	1,800	1,800	0	12.7
Texas	4,097	5,336	4,597	3,727	870	32.4
North Central	1,268	1,450	1,392	1,032	360	9.8
West	1,210	1,340	1,230	1,030	200	8.7
Eastern	1,068	1,112	883	735	148	6.2
Gulf and Southwest	376	1,036	719	588	131	5.1
Panhandle	175	398	373	342	31	2.6
West Virginia	113	133	133	133	0	0.9
Wyoming	150	249	250	128	122	1.7
Miscellaneous	5	8	8	7	1	0.1
Total United States	12,777	15,688	14,201	11,825	2,376	100.0

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Annual and Cumulative Production, Remaining Reserves by Fields

On this and the following four pages are detailed remaining reserves of the country's larger fields

PRODUCTION AND RESERVES—CALIFORNIA FIELDS

(In thousands of barrels)

SAN JOAQUIN VALLEY

	1947 production	January 1, 1948 Cumulative	January 1, 1948 Estimated reserves	No. of wells
Ant Hill	533	1,268	2,732	34
Antelope Hills	168	2,951	7,048	30
Belridge, North	1,873	54,593	25,407	129
Belridge, South	2,622	41,506	30,994	801
Buena Vista	17,257	347,397	92,613	1,011
Canal	741	13,249	17,751	39
Coalinga, Eastside	5,738	258,930	70,077	621
Coalinga, Northeast	3,130	25,455	31,870	63
Coalinga, Nose	19,265	115,518	250,482	168
Coalinga, Westside	2,442	160,858	24,142	750
Coffee Canyon	378	12,758	12,242	61
Coles Levee, North	6,104	37,441	74,559	110
Coles Levee, South	2,798	8,962	34,935	70
Cymric	5,572	28,683	27,122	201
Edison	4,148	22,878	34,622	262
Elk Hills	2,351	196,982	273,018	580
Fruitvale	2,394	40,370	19,630	189
Greeley	4,288	32,300	33,700	100
Helm	1,553	5,084	7,946	74
Jacalitos	1,679	8,556	10,944	91
Kern Front	3,210	65,426	37,574	653
Kern River	3,731	297,784	37,216	2,382
Kettleman North Dome	13,475	337,316	112,684	409
Lanare	721	1,774	2,426	33
Lost Hills	1,922	59,748	15,252	523
McKittrick	1,605	83,260	13,740	294
Midway-Sunset	15,667	720,866	104,134	2,872
Mount Poso	4,153	82,303	68,697	316
Mount Poso, North	519	6,739	5,761	80
Mountain View	1,881	49,091	8,409	159
Paloma	4,764	10,464	64,536	97
Pleasant Valley	1,506	5,296	12,204	25
Premier	1,139	10,880	11,620	174
Pyramid	318	3,013	2,487	54
Race Track Hill	768	1,495	5,004	34
Raisin City	962	4,781	6,969	42
Rio Bravo	4,567	42,891	57,109	100
Riverdale	1,550	6,796	13,204	65
Round Mountain	1,961	35,462	17,038	186
Salt Creek	2,329	2,776	17,224	70
Sharktooth	510	1,424	6,076	47
Sheep Springs	244	669	6,831	13
Strand	487	4,563	5,437	17
Strand, East	194	941	1,559	7
Ten Section	2,823	41,726	50,774	123
Tejon Ranch	1,188	1,990	10,510	82
Williams	333	3,111	1,889	3
Miscellaneous	1,852	15,247	12,313	241
Total San Joaquin	159,413	3,313,571	1,763,389	14,460

COASTAL DISTRICT

Aliso Canyon	1,218	7,752	19,098	49
Capitan	1,092	11,898	12,627	66
Casmalia	220	15,454	2,046	20
Cat Canyon, East	197	4,441	2,099	13
Cat Canyon, West	4,206	30,533	46,767	114
Del Valle	3,051	11,087	33,513	108
Elwood	2,575	80,314	17,668	77
Gato Ridge	1,311	14,207	13,093	41
Lompoc	1,681	14,622	17,378	79
Newhall-Potrero	2,401	13,980	23,020	68
Oak Canyon	620	2,904	8,596	20
Orcutt	1,644	105,840	17,160	236
Oxnard	499	2,361	1,554	6
Padre Canyon	1,182	5,794	12,206	42
Rincon	1,343	22,458	17,042	103
San Miguelito	1,883	16,405	39,595	55
Santa Maria Valley	9,560	84,153	92,847	488
Shiells Canyon	393	13,218	4,282	142
South Mountain	1,844	28,249	21,751	132
Temescal	216	3,579	1,921	22
Torrey Canyon	237	5,280	2,220	48
Ventura Avenue	17,713	337,827	182,173	647
West Mountain	214	223	1,777	16
Miscellaneous	805	29,010	8,582	346
Total Coastal Dist.	56,105	861,589	599,015	2,938

LOS ANGELES BASIN

Alondra	346	418	7,154	3
Brea-Olinda	4,463	192,703	42,297	391
Coyote, East	1,753	54,984	20,516	178
Coyote, West	5,518	154,436	45,564	239
Dominguez	5,441	173,208	61,792	338
East Los Angeles	403	582	16,918	7
El Segundo	168	11,913	2,087	26
Huntington Beach	18,318	396,333	151,167	1,041
Inglewood	4,329	160,476	39,524	317
Long Beach	8,605	726,425	78,575	1,140
Montebello	2,699	148,517	26,483	342
Newport	2,682	5,074	27,689	170
Playa Del Rey	761	53,101	6,899	121
Potrero	322	6,367	1,833	27
Richfield	2,411	107,345	20,655	321
Rosecrans-Athens	1,687	60,917	16,583	187
Santa Fe Springs	5,896	517,355	52,645	558
Seal Beach	4,045	109,698	33,302	185
Torrance	2,942	122,528	29,972	749
Whittier	359	20,654	9,346	162
Wilmington	47,698	368,608	356,392	1,791
Miscellaneous	377	73,595	6,203	130
Total Los Angeles	121,223	3,465,237	1,113,596	8,423
Total California	336,741	7,640,667	3,476,000	25,821

ROCKY MOUNTAIN AREA

(In thousands of barrels)

WYOMING

Big Muddy	688	30,094	5,906	173
Big Sand Draw	1,531	2,239	17,761	5
Byron	2,126	18,784	14,216	50
Circle Ridge	443	1,636	3,861	13
Cole Creek	491	3,400	10,600	37
Crooks Gap	645	1,677	7,323	7
Elk Basin	4,257	28,557	241,443	222
Frannie	1,640	13,085	16,915	54
Garland	1,982	10,394	23,606	50
Gebo	538	1,673	9,327	20
Grass Creek	1,039	36,251	13,749	346
Hamilton Dome	1,999	11,255	14,745	53
La Barge	420	10,638	3,262	136
Lance Creek	3,907	77,658	27,342	234
Little Buffalo Basin	979	1,846	8,154	18
Lost Soldier	2,727	34,554	40,446	64
Oregon Basin	3,970	42,681	97,319	159

WYOMING (Continued)

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Rock River	867	26,105	8,895	55
Salt Creek	4,533	326,899	73,111	1,785
Steamboat Butte	2,702	6,404	13,596	14
Wertz	1,267	14,157	15,843	24
Miscellaneous	5,831	51,421	102,580	668
Total Wyoming	44,582	751,408	770,000	4,187
MONTANA				
Cut Bank	3,917	55,578	34,422	998
Elk Basin	1,620	5,878	24,122	51
Kevin-Sunburst	1,581	50,572	14,428	1,084

MONTANA (Continued)

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Mosby Dome-Cat Creek	602	16,706	3,294	155
Miscellaneous	1,024	13,308	6,734	197
Total Montana	8,744	142,042	83,000	2,485
COLORADO				
Iles Dome	548	11,978	5,022	29
Rangely	11,680	23,320	286,680	365
Wilson Creek	2,705	10,702	24,298	29
Miscellaneous	707	36,200	4,000	127
Total Colorado	15,640	82,200	320,000	550

PRODUCTION AND RESERVES—TEXAS

(In thousands of barrels)

NORTH AND WEST CENTRAL TEXAS

RAILROAD DIST. 7-B—

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Wimberly	1,431	5,656	19,344	174
Reddin	941	2,514	6,486	119
Other fields	11,819	428,588	59,170	6,919
Subtotal District 7-B	14,191	436,758	85,000	7,212
RAILROAD DIST. 9—				
Antelope (inc. Miss.)	802	4,258	8,742	85
Bryson	1,192	25,185	11,815	472
Burkburnett	1,133	163,673	16,327	1,692
Cooper-Daume	1,005	2,208	7,792	100
Electra	2,611	155,838	39,162	2,587
Fargo	1,013	5,718	4,282	88
Grayback-Rock Crossing	1,408	71,940	18,060	1,152
Hildreth	2,981	9,395	30,605	173
Hull-Silk-Sikes (inc. Caddo)	3,631	30,795	44,205	439
K-M-A	6,346	137,540	42,460	2,407
Nocona	929	35,719	14,281	814
Sivels Bend	1,479	2,341	10,659	55
Walnut Bend	2,754	16,564	16,436	206
Other fields	20,938	336,762	110,174	10,173
Subtotal District 9	48,222	997,886	375,000	20,403
Total N. & W. C. Tex.	62,413	1,434,644	460,000	27,615

WEST TEXAS

RAILROAD DIST. 7-C—

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Barnhart	1,653	6,137	26,867	47
Big Lake	1,177	107,804	12,196	190
McCamey	3,358	70,961	44,039	870
Todd Deep	5,259	8,942	76,058	86
World	862	11,469	8,531	109
Other fields	1,587	6,927	22,309	323
Subtotal District 7-C	13,896	212,240	190,000	1,625
RAILROAD DIST. 8—				
Andector	742	764	49,236	25
Block 31	1,560	2,478	47,522	38
Cowden, North	8,939	66,539	108,461	685
Cowden, South	1,091	8,698	16,302	143
Embar	1,830	6,945	18,055	38
Emma	767	5,144	9,856	76
Foster	7,320	44,219	80,781	634
Fuhrman-Mascho	1,337	9,560	15,440	210
Fullerton	13,290	34,706	415,294	569
Garza	1,680	3,034	8,966	177
Goldsmith (all)	9,076	82,092	357,908	1,053
Hendrick	1,292	212,283	17,717	213
Howard-Glasscock	5,171	128,938	71,062	913
Iatan-East Howard	1,371	23,450	16,550	408
Johnson	739	7,211	7,789	126
Jordan	2,158	16,557	23,443	225
Kermit	914	34,823	15,177	565
Keystone (all sands)	14,742	50,983	399,017	691
Levelland	970	1,068	23,932	144
McElroy	10,489	175,058	124,942	727
Mabee	1,072	3,493	21,507	83
Martin (all sands)	825	1,321	18,679	36
Means	1,671	12,450	27,550	180
Monahans (all)	1,256	2,569	47,431	36
Penwell	1,036	28,802	16,192	177
Sand Hills	4,499	21,553	78,447	344
Seminole	7,316	39,977	90,023	329
Sharon Ridge	832	3,697	8,303	377
Slaughter	18,485	112,358	362,642	2,199
T-X-L	16,768	22,673	177,327	253

WEST TEXAS (Continued)

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Waddell	1,037	9,766	11,234	150
Ward, No. (inc. Estes)	3,738	60,578	59,422	895
Wasson	26,121	149,473	500,527	1,601
Welch	1,217	2,304	17,696	128
Wheeler	2,353	4,756	45,244	64
Yates	16,559	331,825	418,175	598
Other fields	16,240	191,363	194,151	4,321
Subtotal District 8	206,503	1,913,508	3,922,000	19,431
Total West Texas	220,399	2,125,748	4,112,000	21,056

TEXAS PANHANDLE

RAILROAD DIST. 10—

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Armstrong	1,539	5,828	6,178	199
Badger	3,740	60,123	34,877	1,086
Bentley and E. Shamrock	1,055	29,515	15,485	418
Borger-Pantex Borger	2,565	102,845	27,155	337
Bowers	1,392	35,944	14,056	215
Cooper-Moore	1,543	30,324	14,676	400
Dial	2,212	42,183	27,617	706
Finley	4,454	77,033	52,967	538
Lefors	1,389	28,653	16,347	186
Noel-Roxana	2,392	24,569	25,431	259
West Pampa	3,622	83,895	41,105	1,071
Other fields	5,540	80,251	64,106	891
Total Tex. Panhandle	31,443	601,163	340,000	6,306

NEW MEXICO

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Arrowhead	1,547	13,070	17,930	120
Bowers	253	258	4,742	28
Brunson	1,360	1,708	18,292	41
Caprock	615	1,076	18,924	87
Cooper-Jal	721	24,794	6,206	96
Drinkard	3,332	4,128	25,872	178
Eaves	330	3,938	3,062	26
Eunice	4,792	86,468	63,532	461
Eunice, South	576	9,290	3,710	94
Eunice, West	428	2,382	2,618	33
Grayburg-Jackson	1,935	19,990	20,010	287
Hobbs	3,562	119,755	55,245	252
Langlie-Mattix	1,122	22,487	12,513	296
Loco Hills	874	11,669	8,331	190
Lovington	598	4,657	5,343	53
Lovington, West	615	1,749	5,251	43
Maljamar	2,119	15,636	19,364	223
Monument	6,541	86,952	93,048	488
Paddock	1,298	2,009	12,991	79
Penrose-Skelly	608	17,724	5,276	270
Square Lake	637	5,012	2,988	184
Vacuum	4,099	39,173	90,827	357
Other fields	3,008	43,691	43,925	788
Total New Mexico	40,970	537,616	540,000	4,689

EAST TEXAS

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
RAILROAD DIST. 4—				
Sulphur Bluff	1,174	16,218	13,782	68
Van	10,446	182,927	267,073	555
Miscellaneous Dist. 5	2,948	283,199	39,145	1,110
Subtotal District 5	14,568	482,344	320,000	1,733
RAILROAD DIST. 6—				
East Texas	118,643	2,476,091	2,523,909	22,841
Carthage	3,659	5,367	54,631	311
Cayuga	2,550	43,153	31,745	211
Coke	801	3,834	10,166	28

EAST TEXAS (Continued)

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Hawkins	17,083	78,813	401,187	593
Long Lake	2,428	23,139	28,934	133
Manziel	948	2,614	9,386	50
New Hope	1,471	5,521	19,479	74
Quitman	2,959	10,176	24,824	96
Rodessa	960	58,210	6,790	218
Talco	8,896	101,898	88,102	723
Other fields	6,369	41,104	60,847	535
Subtotal District 6	166,767	2,849,920	3,260,000	25,813
Total East Texas	181,335	3,332,264	3,580,000	27,546

SOUTHWEST TEXAS

RAILROAD DIST. 4—				
Agua Dulce-Stratton	11,896	61,334		475
Borregas	221	224		20
Monte Negra	0	28		1
Seeligson	15,027	48,201		648
Tijerina-Canales	3,485	7,038		137
Blucher	274	660		12
La Gloria	4,296	17,795		88
Total S. Texas Giant	35,199	135,280	1,114,720	1,381
Aransas Pass	887	16,731	10,269	59
Benavides	1,062	17,592	17,408	165
Colorado	1,668	6,975	11,025	233
Conoco-Driscoll	1,045	9,844	12,156	62
Flour Bluff and East	1,051	13,823	11,177	84
Garcia	1,429	4,322	12,678	96
Government Wells, No.	1,422	39,207	20,793	362
Hoffman	1,074	15,499	14,501	291
Kelsey (all zones)	2,078	8,098	18,902	175
Loma Novia	1,082	32,924	12,076	413
Luby	915	13,705	8,295	133
Midway	1,589	8,678	13,322	95
Odem	796	4,044	7,956	77
Piedras Pintas	848	1,322	10,678	41
Plymouth	3,446	42,520	42,480	179
Richard King	1,127	7,489	12,511	81
Rincon	2,506	15,954	29,046	158
Saxet	2,201	62,377	27,623	168
Seven Sisters	2,230	28,754	26,246	376
Sun	1,201	6,554	13,446	81
Taft	951	9,779	10,221	75
White Point, East	4,591	32,453	37,547	249
Willamar	4,824	13,844	71,156	213
Miscellaneous Dist. 4	19,305	259,406	231,768	3,825
Subtotal Dist. 4	94,527	807,174	1,798,000	9,072
RAILROAD DIST. 1—				
Darst Creek	2,522	68,226	26,774	316
Luling-Branyon	1,533	89,515	16,485	648
Other fields	4,201	108,829	25,741	2,446
Subtotal District 1	8,266	266,570	70,000	3,410
Total S. W. Texas	102,793	1,073,744	1,868,000	12,481
RAILROAD DIST. 2—				
Bonnieview	1,175	2,345	17,655	68
Falls City	1,507	2,928	17,078	60
Ganado, West	761	3,622	11,378	55
Greta	3,725	42,136	37,864	188
Heyser	1,998	30,895	19,105	178
La Rosa	1,349	9,945	15,055	72
Lolita	2,229	14,775	26,225	217
La Ward, North	791	5,097	14,903	99
McFaddin	1,817	12,697	27,303	81
Placedo	1,742	22,060	21,940	136
Refugio area	3,031	54,268	35,732	198
Slick-Wilcox	1,680	5,612	19,388	48
Tom O'Connor	17,737	116,075	382,925	568
West Ranch	7,060	47,341	126,659	464
Other fields	12,779	56,095	161,790	1,150
Tubtotal District 2	59,813	456,844	935,000	3,611

GULF COAST TEXAS

RAILROAD DIST. 3—				
Amelia	1,589	15,020	15,980	90
Anahuac	10,693	76,459	173,541	350
Barbers Hill, Deep	1,940	85,333	24,667	125
Bay City	1,549	12,650	11,450	53
Cedar Point	743	4,452	10,548	33
Chocolate Bay	864	1,701	9,299	19
Clear Lake	1,268	8,910	15,090	30
Conroe	22,018	249,241	275,759	874
Dyersdale	958	4,636	10,334	69
Fairbanks	2,159	23,617	21,383	264
Fannett	2,774	15,298	9,702	65
Fig Ridge	1,788	10,886	14,114	69

GULF COAST TEXAS (Continued)

	1947 production	January 1, 1948 Cumulative	Estimated reserves	No. of wells
Gillock	1,304	14,185	10,815	95
Hastings	21,391	147,360	252,640	657
High Island	1,171	23,561	11,439	66
Hull	1,281	103,540	11,460	162
Katy	4,674	18,539	91,461	83
Livingston	1,902	13,358	16,642	142
Lovell Lake	1,429	13,015	11,985	109
Magnet-Withers	2,767	27,188	37,812	250
Manvel	2,745	37,131	32,869	145
Markham, North	1,147	6,549	13,451	39
Mercy	940	5,063	9,937	37
North Withers	2,768	19,045	10,955	155
Old Ocean	6,853	36,832	188,203	134
Oyster Bayou	2,926	10,743	19,257	29
Raccoon Bend	2,733	40,707	34,293	151
Red Fish Reef	826	3,885	6,215	24
Segno	1,220	13,335	16,665	106
Silsbee	988	7,559	5,441	47
Sour Lake	970	83,696	11,304	156
South Houston	1,605	15,222	13,778	77
Stowell	4,423	23,136	61,864	91
Sugarland	1,699	41,997	23,003	45
Sugar Valley	1,443	1,717	18,283	60
Thompson	11,165	91,425	133,575	221
Thompson, North	2,000	7,013	17,987	58
Thompson, South	2,508	15,671	24,329	82
Tomball	3,392	40,634	29,366	418
Webster (Friendswood)	21,112	104,985	245,015	205
West Columbia	2,349	103,174	26,826	153
Other fields	30,020	770,735	186,263	2,634
Subtotal District 3	190,094	2,349,203	2,170,000	8,543
Total Gulf Coast	249,907	2,806,047	3,105,000	12,154

PRODUCTION AND RESERVES—LOUISIANA

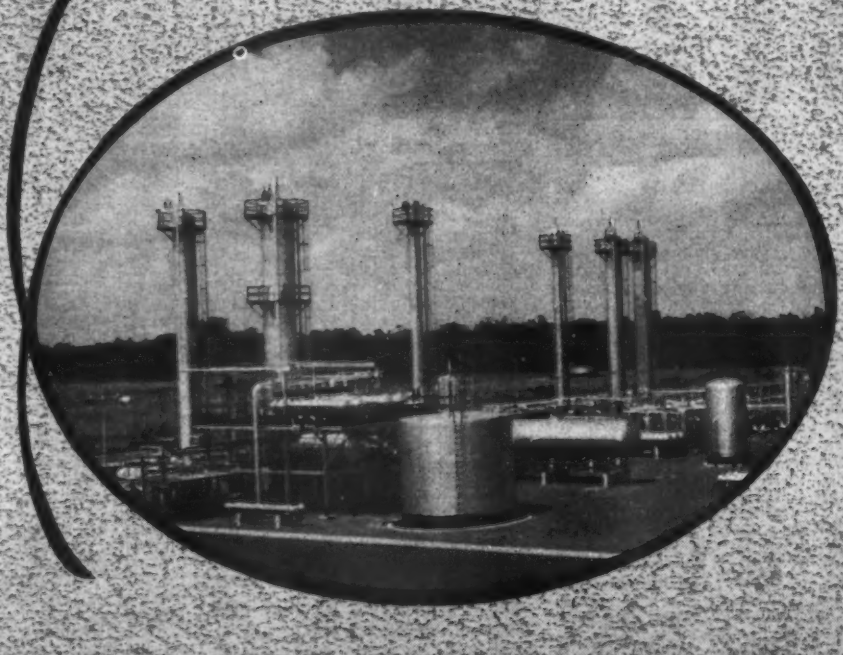
(In thousands of barrels)

SOUTH LOUISIANA

Anse La Butte	2,422	17,411	32,589	76
Avery Island	1,609	4,551	18,449	23
Barataria	1,343	8,994	16,006	24
Bay St. Elaine	821	2,525	12,475	17
Bayou Sale	4,438	16,934	58,064	64
Black Bayou	901	14,241	10,759	29
Bosco	944	28,415	9,585	39
Caillou Island	2,677	43,028	31,972	62
Charenton	1,561	15,743	14,257	115
Crowley, North	1,512	14,600	20,400	37
Delta Farms	5,574	17,198	62,802	85
Egan	2,047	3,925	36,075	51
Eola	1,340	23,664	11,336	66
Erath	6,549	23,759	101,251	58
Garden Island Bay	1,287	12,250	10,750	41
Gibson	899	13,675	11,325	25
Gibson, Northeast	1,151	6,416	13,584	15
Golden Meadow	2,649	28,057	31,943	167
Good Hope	2,176	4,719	15,281	32
Grand Bay	3,387	20,503	24,497	56
Gueydan	1,545	10,464	19,536	25
Hackberry, East	1,702	36,515	23,485	60
Hackberry, West	2,341	22,989	25,011	79
Iberia	1,529	37,583	22,417	66
Iowa	2,429	62,399	32,601	58
Jennings	1,823	98,284	22,716	97
Lafitte	4,350	52,639	52,361	62
Lake Chicot	1,357	4,636	15,364	24
Lake Pelto	1,427	7,347	12,653	25
Lake Salvador	1,605	8,774	21,226	25
Lake Verret, West	1,361	7,186	14,814	38
La Pice	1,054	3,085	8,915	21
Leeville	1,560	31,727	18,273	73
Neale	1,165	10,648	14,352	49
Paradis	3,736	22,952	52,048	72
Pine Prairie, Deep	1,569	9,818	12,182	61
Port Barre	1,374	16,875	13,125	64
Quarantine Bay	3,381	22,176	37,824	48
Roanoke	782	13,757	6,243	20
St. Gabriel	1,691	10,906	14,094	28
Sulphurmines	769	20,446	7,554	64
Tepetate, West	1,927	4,741	12,359	38
University	1,998	23,105	18,895	69
Venice	3,627	19,957	42,043	49
Ville Platte	2,716	42,727	32,273	249
Vinton	3,673	56,788	41,212	111
West Bay	1,703	7,266	12,734	31
West Cote Blanche Bay	1,072	5,193	9,807	34
White Lake, East	1,343	5,890	9,110	22
White Castle	1,224	12,355	12,645	37
Other fields	26,062	253,532	328,728	793
Total South Louisiana	129,182	1,263,368	1,510,000	3,563

TULSA TYPE

- Oil Refinery Equipment
- Gasoline Plants
- Structural Steel
- Warehouse Steel
- Steel Plate Fabrication



BUILT *Right*

FLINT STEEL CORPORATION

formerly

TULSA BOILER AND MACHINERY CO.

Tulsa, Oklahoma

NORTH LOUISIANA

	1947 production	January 1, 1948 Cumulative	January 1, 1948 Estimated reserves	No. of wells
Caddo	2,332	175,771	19,229	1,735
Cotton Valley	2,980	55,371	29,629	161
Delhi-Big Creek	9,941	17,499	157,501	373
Haynesville	3,099	94,018	30,982	353
Holly Ridge	1,183	4,729	20,271	37
Homer	915	77,284	7,716	310
Lake St. John	6,092	13,350	46,650	124
Lisbon	581	13,410	4,590	146
Little Creek	628	5,545	3,455	71
Nebo	2,720	19,604	15,396	151
Olla	2,226	24,236	20,764	181
Rodessa	1,714	89,965	10,035	290
Sligo	465	5,593	3,407	87
Urania	644	30,049	6,951	281
Miscellaneous	3,769	122,184	23,424	960
Total N. Louisiana	39,289	748,608	400,000	5,260

PRODUCTION AND RESERVES—ARKANSAS

(In thousands of barrels)

Atlanta	1,486	9,410	7,590	55
Buckner	635	6,558	8,442	32
Dorcheat-Macedonia	1,462	10,893	19,107	101
El Dorado and E. El Dorado	382	60,415	4,585	234
Fouke	975	4,451	5,509	50
Magnolia	4,643	50,485	49,515	110
McKamie	1,182	6,515	10,485	23
Midway	2,696	13,754	26,246	44
Schuler	3,939	55,332	29,668	86
Smackover	3,954	415,037	49,963	1,546
Stephens	1,461	16,158	7,842	359
Village	1,750	6,391	6,609	57
Wesson	1,730	2,370	9,630	97
Miscellaneous	3,474	65,903	24,809	657
Total Arkansas	29,769	723,672	260,000	3,451

MISSISSIPPI-ALABAMA

(In thousands of barrels)

MISSISSIPPI

Baxterville	4,960	6,287	63,713	88
Brookhaven	4,419	5,643	44,357	133
Cranfield	5,540	12,654	87,346	88
Eucutta	2,519	7,425	72,575	122
Heidelberg	5,052	13,496	96,504	139
La Grange	1,116	1,138	18,868	44
Langsdale	372	845	4,755	28
Mallalieu	2,078	2,399	17,601	40
Pickens	1,508	9,888	15,112	48
Tinsley	6,749	100,993	44,007	297
Miscellaneous	1,056	1,827	25,162	88
Total Mississippi	35,369	162,595	490,000	1,115

ALABAMA

Gilbertown	219	779	1,000	21
Gilbertown, East	168	225	1,000	12
Total Alabama	387	1,004	2,000	33

PRODUCTION AND RESERVES—OKLAHOMA

(In thousands of barrels)

Allen (Deep)	1,075	58,495	11,505	275
Antioch, Southwest	2,582	3,183	26,817	69
Apache	1,803	12,225	8,775	43
Arcadia, Northeast	548	1,420	4,580	23
Avant	659	98,367	7,663	714
Aylesworth	717	1,789	3,211	45
Bebee	619	16,832	6,168	198
Billings (Deep and Shallow)	543	25,382	2,618	74
Bowlegs	1,172	127,873	12,127	183
Burbank	2,615	223,585	26,415	1,686
Burbank, South	1,455	44,363	15,637	217
Cache Creek	2,328	2,976	4,024	269
Carr City	405	33,986	3,014	59
Cement	4,442	47,192	32,808	510
Cheyarha	450	2,700	2,300	107
Cookietown, East	635	635	1,365	118
Coon Creek	1,652	2,259	6,741	40
Coyle	477	9,188	2,812	30
Crescent	1,321	20,930	9,070	130
Cromwell	671	61,599	8,401	212
Cumberland	3,948	25,813	39,187	145
Cushing	2,839	376,797	33,203	1,615

OKLAHOMA (Continued)

	1947 production	January 1, 1948 Cumulative	January 1, 1948 Estimated reserves	No. of wells
Duncan, West	544	8,403	2,697	113
Earlsboro	616	130,590	4,410	130
Ed Cox	568	1,931	4,069	132
Edmond	545	22,569	4,431	68
Edmond, West	14,936	73,443	106,557	780
Empire	488	17,084	5,916	255
Fitts	1,287	105,000	13,000	509
Garber	506	58,623	5,377	510
Garr Creek	651	775	1,225	19
Glenn Pool	2,568	233,325	21,675	1,794
Garden Grove	431	443	1,557	37
Grief Creek	742	783	2,217	48
Hawkins, Northwest	392	1,089	1,911	106
Healdton	2,431	205,776	24,224	1,901
Hewitt and West Hewitt	1,672	105,422	7,578	902
Hobart, Northeast	409	668	1,332	26
Hoover, Northwest	439	1,211	2,789	60
Jesse	413	8,226	1,774	46
Keokuk	467	15,434	1,566	95
Knox	522	17,769	4,231	186
Konawa	437	17,171	2,829	76
Lindsay, East	396	397	19,603	12
Lindsay, North	531	659	16,341	18
Lindsay, Northeast	475	475	13,525	11
Little River	1,432	120,390	10,610	188
Lone Grove, Southwest	1,497	4,341	5,659	97
Lovell, Southeast	506	1,219	2,781	19
Lucien	694	34,765	5,235	114
Maysville, Southwest	448	497	9,503	31
Milfay	745	1,051	1,949	36
Moore, South	383	2,327	3,673	34
Moore, West	782	2,847	4,153	36
Naval Reserve	443	20,996	4,004	231
Oklahoma City	9,670	652,218	72,782	728
Oscar	488	12,533	5,467	208
Pauls Valley	1,886	14,034	8,966	84
Pauls Valley, East	513	2,704	2,296	88
Ramsey	839	12,043	7,957	39
Rover	400	488	1,512	16
Shawnee, Northeast	358	1,656	3,344	7
Seminole City	1,271	138,199	11,821	177
Sholem Alechem	723	42,490	7,510	303
Slick	440	36,080	1,920	196
St. Louis	1,356	170,223	14,777	409
Soldier Creek	1,218	1,348	2,652	127
Tatums	638	19,702	5,298	223
Tonkawa	374	124,041	5,951	143
Tussy	1,074	10,216	7,784	174
Velma (Deep and Shallow)	6,183	17,265	32,735	890
Velma, North	1,064	1,134	4,866	20
Velma, West	906	1,310	5,690	37
Watchorn, East	794	4,741	5,259	28
Wayne, Southwest	416	476	8,524	27
Wildcat Jim	1,148	20,759	5,241	155
Wilzetta	429	2,323	1,677	29
Yale-Quay	772	25,847	6,153	177
Miscellaneous	36,782	2,006,282	178,976	33,875
Total Oklahoma	142,094	5,731,400	995,000	53,540

PRODUCTION AND RESERVES—KANSAS

(In thousands of barrels)

Barry	780	2,481	3,519	33
Bemis-Shutts	6,057	49,097	30,903	501
Big Creek	751	9,559	5,441	137
Bloomer	3,045	27,354	17,646	268
Bornholdt	1,022	11,135	5,865	142
Boyd	376	1,116	4,384	30
Burnett	3,120	27,897	27,103	230
Burrton-Haury	1,073	42,067	7,933	315
Carmi	945	6,099	4,901	89
Chase	2,644	46,071	13,929	396
Chitwood	1,068	3,558	6,442	76
Crowther	584	1,721	4,329	49
Cunningham	371	6,286	2,714	121
Drach	549	2,798	3,202	45
Edwards	1,170	9,192	5,802	104
El Dorado	2,764	195,591	29,409	1,654
Fairport	735	19,276	3,724	157
Forrest Hill	414	1,271	1,729	35
Frog Hollow	372	3,080	1,920	44
Geneseo	2,563	21,836	15,164	187
Gorham	1,880	32,839	17,111	269
Hall-Gurney	3,414	33,945	26,055	657
Hittle	628	7,333	3,667	55
Kraft-Prusa	6,425	31,251	28,749	537
Lindsborg	653	4,221	2,729	112
Lost Springs	377	7,222	1,778	175
Merten	513	902	2,098	55
Morel	1,641	5,759	9,241	88

KANSAS (Continued)

	1947 production	January 1, 1948 Cumulative	January 1, 1948 Estimated reserves	January 1, 1948 No. of wells
Paden	407	895	2,105	46
Peace Creek	1,287	10,370	9,630	122
Ray	1,397	7,022	5,978	103
Raymond	588	11,133	2,867	67
Richardson	752	8,553	5,447	60
Ritz-Canton	657	39,991	5,009	196
Russell	533	7,556	3,444	66
Silica	5,195	77,354	32,646	719
Sittner	582	1,806	3,194	54
Stoltenberg	2,804	24,930	13,070	318
Trapp	11,371	95,309	64,691	1,233
Voshell	484	26,911	4,089	68
Zenith	849	23,159	4,841	341
Miscellaneous	31,488	822,093	179,009	17,911
Total Kansas	104,328	1,768,039	624,000	27,867

PRODUCTION AND RESERVES—ILLINOIS

(In thousands of barrels)

Albion	663	6,355	3,655	202
Allendale	552	3,464	4,536	179
Benton	773	19,536	5,464	226
Bible Grove	1,069	6,379	5,621	185
Boulder	432	2,969	3,031	31
Boyd	1,313	4,327	5,673	105
Boyleston	395	8,068	1,932	137
Bungay	506	2,346	1,654	76
Calhoun	426	1,960	2,040	82
Centralia	1,456	31,014	11,986	620
Clay City Consolidated	4,383	50,139	16,861	1,184
Concord	589	2,513	2,487	94
Dale-Hoodville	1,341	24,071	10,929	413
Dix	437	5,370	4,630	93
Dundas	1,022	17,149	12,851	381
Herald	675	1,760	3,240	116
Inman, East	343	3,884	1,116	95
Iola	479	3,888	2,112	115
Johnsonville	936	19,405	3,595	299
Keensburg	723	11,865	4,135	336
Louden	7,385	136,840	53,160	1,936

ILLINOIS (Continued)

	1947 production	January 1, 1948 Cumulative	January 1, 1948 Estimated reserves	January 1, 1948 No. of wells
Marine	1,057	3,585	6,415	131
Markham City, West	464	783	1,217	29
Mattoon	2,050	6,822	18,178	370
Mills Shoals	431	4,530	2,470	132
Mount Carmel	617	7,367	2,633	341
New Harmony	2,494	37,453	17,547	751
Noble	1,450	22,977	5,023	254
Parkersburg	744	4,974	3,026	122
Patoka	1,345	8,094	6,906	129
Phillipstown	829	5,839	3,161	176
Roland	641	7,256	2,744	163
Rural Hill	786	10,091	3,909	215
Sailor Springs	688	3,344	4,656	149
Salem	5,239	203,367	36,633	2,330
St. James	630	9,867	5,133	173
Stokes Consolidated	1,164	5,080	5,920	162
Thackery	373	1,571	1,429	50
Tonti	426	8,158	2,842	67
Woodlawn	686	10,412	3,588	145
Bridgeport	2,267	238,552	21,457	3,530
Robinson	1,100	154,376	10,624	6,754
Miscellaneous	14,081	183,254	48,780	6,587
Total Illinois	65,460	1,301,054	375,000	29,538

PRODUCTION AND RESERVES—MICHIGAN

(In thousands of barrels)

Adams	998	8,247	5,553	80
Coldwater	1,668	4,287	10,713	77
Deep River	2,871	7,466	16,534	102
East Norwich	351	1,430	2,970	47
Essexville	234	1,008	2,092	36
Fork	778	5,993	3,507	63
Kawkawlin	734	4,222	4,228	165
Kimball Lake	913	913	4,487	93
Porter-Yost and Jasper	594	43,218	6,782	293
Reed City	2,211	34,557	12,453	183
Stony Lake	431	435	1,805	28
Miscellaneous	4,371	161,104	18,876	2,483
Total Michigan	16,154	272,880	90,000	3,600

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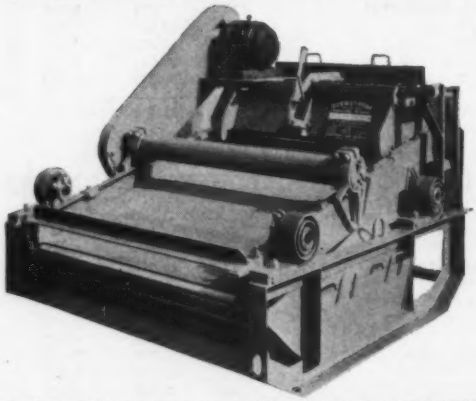

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Field Name, County, Location, and Initial Production of Discovery Wells

These data supplement the information on newly developed reserves tabulated on pages 200-214. They indicate significant facts upon which to base the year's exploration and development operations

CALIFORNIA

BACON HILLS—Kern, April; Seaboard 3-21 Seaboard-Bandini, 21-28s-20e, IP 56 bbl., gravity 40.2°, cut 11 per cent, perforated interval 7,846-76 ft., Oceanic sand, TD 8,477 ft.

BELGIAN ANTICLINE—Kern, September; The Texas Co. 26-29 Westpet, 29-30s-22e, IP 238 bbl. through 9/64-in. choke, gravity 37.2°, cut 0.5 per cent, perforated interval 4,400-4,828 ft., Oceanic sand, TD 5,290 ft.

COMANCHE POINT—Fresno; Steel & Gould 1 Gould, 32-12s-18w, IP 30 bbl., gravity 13°, 70 per cent cut, basal Chanac and Santa Margarita 400-639 ft.

FOUR DEER—Santa Barbara, June; Sunray Oil Corp. 1 Los Flores, 4-8n-33w, IP 402 bbl. through 16/64-in. choke, perforated intervals 4,805-30 ft. and 5,248-5,478 ft., Miocene sand, TD 5,998 ft.

KERN BLUFF—Kern, September; Oceanic Oil Co. 1 Needham & Bloemer, 7-29s-29e, IP 75 bbl., gravity 15.5°, water cut 2.6 per cent, perforated intervals 815-845 ft. and 862-935 ft., probably Transition, TD 935 ft.

MONTALVO, WEST—Ventura, April; Standard Oil Co. of California 2 McGrath, 26-2n-23w, IP 144 bbl. through 10/64-in. choke, perforated interval 8,428-72 ft., unknown zone, TD 11,505 ft.

ROSECRANS-ATHENS, NORTHWEST—Los Angeles, September; Shell Oil Co., Inc., 1 Union-Poindexter, 12-3s-14w, IP 105 bbl., perforated intervals 8,455-8,630 ft. and 8,882-9,255 ft., Miocene seventh and eighth zones, TD 9,272 ft.

SAN ARDO—Monterey, November; The Texas Co. 1 Lombardi, 27-22s-10w, IP 84 bbl. gravity 10°, water cut 4 per cent, producing zone 2,133-58 ft., TD 2,158 ft.

SAN JOAQUIN—Fresno, March; Superior Oil Corp. 55 Hackala, 32-15s-17e, IP 144 bbl. through 9/64-in. choke, gravity 30.3°, cut 2.4 per cent, perforated intervals 6,962-70 ft., 6,994-7,004 ft. and 7,020-34 ft., Nortonville and Domengine, TD 7,171 ft.

SHEEP SPRINGS—Kern, July; Independent Exploration Co. 11 Cymric, 21-29s-21e, IP 1,080 bbl. through 20/64-in. choke, gravity 38.2°, cut 0.4 per cent, perforated interval 4,885-4,915 ft., TD 4,923 ft.

SHEEP SPRINGS, GAS—Kern, July; Rostchild-Bender 8 Sheep Springs, 17-29s-21e, IP 850,000 cu. ft. gas and 15 bbl. condensate, perforated interval 4,801-40 ft., Oceanic sand, TD 4,904 ft.

NEW PAYS

ALISO CANYON—Los Angeles, September; Standard Oil Co. of California 1 Del Aliso, 29-3n-16w, IP 147 bbl. gravity, 23.7°, cut 1.6 per cent, perforated intervals 7,031-65 ft. and 7,075-7,100 ft., Del Aliso zone, TD 9,646 ft.

BELGIAN ANTICLINE—Kern, August; Pacific 84 Midway-McKittrick, 30-32s-32e, IP 570 bbl. through 16/64-in. choke, gravity 34.0°, cut 5 per cent, perforated intervals 4,730-85 ft. and 4,800-30 ft., Point of Rocks, TD 5,195 ft.

COYOTE, WEST—Los Angeles, January; Standard Oil Co. of California 193 Murphy-Coyote, 18-3s-10w, IP 85 bbl. through 20/64-in. choke, gravity 33.7°, cut 15 per cent, perforated interval 5,008-5,208 ft., "136" zone, TD 5,210 ft.

DEL VALLE—Los Angeles, August; Havenstrite 15 Lincoln, 16-4n-17w, IP 75 bbl. through 12/64-in. choke, gravity 32°, water cut 1 per cent, perforated interval 10,942-11,742 ft., "15" zone, TD 11,865 ft.

ELWOOD—Santa Barbara, January; Signal Oil & Gas Co. 208-S-1 State, 8-4n-29w, IP 239 bbl. gravity 39.1°, cut 0.1 per cent, producing from Sespe.

FOUR DEER—Santa Barbara, September; Sunray Oil Co. 2 Los Flores, 4-8n-33w, IP 125 bbl., gravity 35°, water cut 1.4 per cent, perforated interval 4,450-4,510 ft., contact zone, TD 5,527 ft.

HUNTINGTON BEACH—Orange, September; Honolulu Oil Corp. 1 Lamb, 6-6s-10w, IP 206 bbl. through 24/64-in. choke, gravity 18.3°, cut 25 per cent, perforated interval 5,870-5,955 ft., Talbert zone, TD 5,968 ft.

LAWNDALE—Los Angeles, September; Seaboard Oil Co. 1 Johnson, 17-3s-14w, IP 225 bbl. through 14/64-in. choke, gravity 35.7°, water cut 43 per cent, perforated interval 7,900-30 ft., Miocene and schist conglomerate; TD 8,026 ft.

LONG BEACH—Los Angeles, July; Shell Oil Co., Inc., 2 Dolley, 29-4s-12w, IP 1,008 bbl. through 18/64-in. choke, perforated intervals 10,056-10,192 ft. and 10,247-10,317 ft., De Soto zone, TD 10,317 ft.

McDONALD ANTICLINE—Kern, March; Honolulu Oil Corp. 1 Wilshire Layman, 18-28s-20e, IP 354 bbl., gravity 18.3°, cut 93 per cent, perforated interval 1,160-1,210 ft., Button bed, 1,153-1,200 ft., TD 2,213 ft.

MIDWAY-SUNSET—Kern, June; General Petroleum Corp. 4 Pacific, 32-12n-23w, IP 1,078 bbl., gravity 27.5°, cut 9 per cent, perforated interval 3,843-3,974 ft., Upper Miocene, TD 3,975 ft.

MOUNTAIN VIEW—Kern, February; Western Gulf Oil Corp. 1 Di Giorgio, 10-31s-29e, IP 209 bbl. through 30/64-in. choke, gravity 28°, cut 24 per cent, perforated interval 5,877-6,504 ft., schist, TD 6,577 ft.

NEWHALL-POTRERO—Los Angeles, September; General Exploration Co. 3 Ferguson, 36-4n-17w, IP 101 bbl. through 12/64-in. choke, gravity 34.8°, cut 0.2 per cent, perforated interval 8,435-9,692 ft., "fourth" zone, TD 9,147 ft.

NEWPORT—Orange, July; California Exploration Co. 1 Cagney, 28-6s-10w, IP 224 bbl., gravity 10.5°, water cut 6 per cent, perforated interval 1,054-1,604 ft., "C" zone, TD 1,906 ft.

SALT CREEK—Kern, March; Independent Exploration Co. 1 Roco, 18-29s-21e, IP 600 bbl. through 12/64-in. choke, gravity 20.6°, perforated interval 1,725-1,856 ft., Carneros sand, TD 1,913 ft.

TEN SECTION—Kern, September; Shell Oil Co., Inc., A-53 K.C.L., 30-30s-28e, IP 447 bbl., gravity 35°, water cut 14 per cent, perforated interval 8,820-60 ft., Lower Stephens, TD 14,000 ft.

ROCKY MOUNTAIN AREA

WYOMING

ANT HILLS—Niobrara, August; Arrow Oil Co. 1 Wessenberger, SW NE SW 1-37n-63w, Muddy (Newcastle) sand 4,818-37 ft., pumped 104 bbl. per day.

EAST ANTELOPE—Fremont, October; Continental Oil Co. 1 Unit, NW SW SE 26-27n-93w, sand in Tertiary 2,157-80 ft., flowed 8,980,000 cu. ft. 24 hours through 2½-in.

HERRICK—Albany, March; Superior Oil Co. 1 Herrick, SW NW SE 1-16n-76w, Tensleep 3,625-78 ft., pumped 315 bbl. 23.6° gravity in 24 hours.

NEIBER—Washakie, February; G. & G. Drilling Co. 1 Government, SE NE NW 19-45n-92w, Embar 10,025-10,189 ft., flowed 768 bbl. of 41° gravity, 24 hours, subsequently made 930 bbl. per day ⅜-in. choke.

PINE MOUNTAIN—Natrona, November; U. S. Oil & Development Co. 1 Government, SE NW SE 26-35n-84w, Tensleep 1,770-1,800 ft., flowed 23,000,000 cu. ft. daily, old abandoned gas field, rediscovered.

SAND CREEK—Washakie, September; General Petroleum Corp. 45-26 Government, NE NE SW 26-46n-91w, third Frontier 6,690-6,753 ft., flowed 587 bbl. 45.3° gravity through ½-in. choke.

SEVEN MILE—Albany, October; California Co.-Phillips Petroleum Co. Christiana, NE NE SE 8-17n-77w. Muddy sand 5,820-53 ft., pumped 98 bbl. 33.6 gravity in 22 hours.

SOUTH BAGGS—Carbon, April; Kerr-McGee & Phillips Petroleum Co. 1 Unit, C SE SE 10-12n-92w, Fort Union, 3,320-3,750 ft., 37,500 cu. ft. gas per day, no oil, no water.

SOUTH FORK—Washakie, May; General Petroleum Corp. 88-24-Government, SE SE SE 24-46n-92w, Embar 10,055-10,250 ft., pumped 202 bbl. 29° gravity 24 hours.

SOUTH SAND DRAW—Fremont, January; Sand Draw Oil Co. 1-T Unit, NE SE NE 26-32n-95w, First Frontier, 4,015-60; second Frontier, 4,105-40; fifth Frontier, 4,555-80 ft., 20,000,000 cu. ft. per day.

NEW PAYS

HATFIELD—Carbon, November; Rocky Mountain Gas Co. 1 Government, NE SE NW 2-19n-88w, Tensleep 5,805-5,969 ft., flowed 300 bbl. 43.2° gravity in 24 hours.

HIDDEN DOME—Washakie, April; Ohio Oil Co. 2 OPC-2, NW SE SE 31-48n-90w, Tensleep 4,530-4,726 ft., 240 bbl. 24 hours.

LOST SOLDIER—Sweetwater, December; Sinclair-Wyoming Oil Co. 77-A, SE NE NE 10-26n-90w, Madison at undisclosed depth, flowed 418 bbl. in 24 hours through perforations 4,950-5,030 ft., 350 psi. casing pressure, testing.

QUEALY—Albany, January; California Co. 2 Holst, SW NE SE 13-17n-77w, Tensleep 5,480-5,510 ft., pumped 278 bbl. in 24 hours. Old well deepened from Dakota.

SOUTH SPRING CREEK—Park, January; Texas Co. 3 Unit, C NW NW 13-49n-102w, Madison 4,435 ft., 25 bbl. per day.

TORCHLIGHT—Big Horn, November; Stanolind Oil & Gas Co. 1 Orchard, SW SE NE 24-51n-93w, Tensleep 3,045-3,140 ft., flowed 1,632 bbl. 35.2° gravity in 24 hours. Old abandoned shallow field.

COLORADO

CHROMO—Archuleta, February; Teague & Florence Drilling Co. 1 Fitzhugh, NW NE NE 4-32n-1e, Greenhorn lime 460-470 ft. flowed 250 bbl. 24 hours, 32° gravity.

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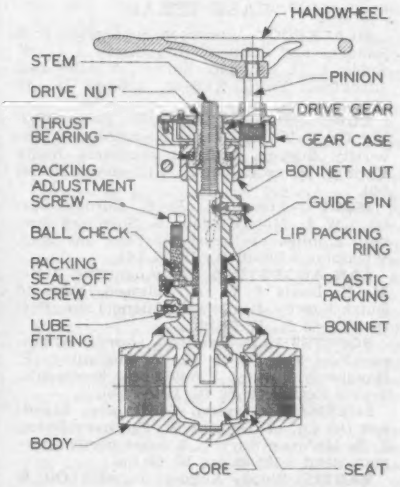

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TULSA 1, OKLAHOMA

DEBEQUE—Mesa, June; E. A. Ottman 1 Roberts, C SW SE 21-8s-87w, Wasatch, sand at 370 ft., 2,500,000 cu. ft. gas.

MAUDLIN GULCH—Moffat, December; Frontier Refining Co. 1 Unit, NE NW NW 35-4n-95w, old well abandoned in Sundance, reworked in Morrison sand, upper section, top 6,054 ft., pumped 70 bbl. oil, 35° gravity, and 20 bbl. water in 24 hours.

RIDGEWAY—Ouray, September; American Petroleum Co. 2 Ashing, NE SE SW 11-45n-8w, Mancos shale, TD 485 ft., 100,000 cu. ft. gas.

MONTANA

KEVIN-SUNBURST—Toole, June; Hardrock Oil Co. 1 Government, SW SW NE 30-35n-4w, Cut Bank sand 2,295-2,339 ft., 4,500,000 cu. ft. of gas in 24 hours.

NORTHWEST ELK BASIN—Carbon, August; Sinclair-Wyoming Oil Co. 1 Wilkins, NW SW NW 28-9s-23e, Madison 6,215-6,795 ft., flowed 4,942 bbl. in 24 hours.

RAGGED POINT—Musselshell, December; Texas Co. 1 Manion, SE SW SW 5-11s-30e, Kibby sand, 4,380 ft., testing, but classed as discovery for minimum of 200 bbl. per day.

SIX SHOOTER—Sweetgrass, August; Grant Oil Co. 1 Wichland, C SE SE 10-3n-18e, Claggett, top at 550 ft., 250,000 cu. ft. of gas per day.

NEW PAYS

CUT BANK—Glacier, May; Union Oil Co. 2 Teterud, C SE NE 34-36n-5w, Madison 2,847-2,904 ft., 23 bbl. in 24 hours, new lime pool in Cut Bank field.

NORTHWEST ELK BASIN—Carbon, December; Sinclair-Wyoming Oil Co. 1 Helen, SE NE NE 29-9s-23e, Frontier 3,376-3,451 ft., 66 bbl. light oil 24 hours.

NORTHWEST NEW MEXICO

RATTLESNAKE—San Juan, December; Continental Oil Co. 119 Rattlesnake, NW SE SE 13-29n-19w, Dakota 783 ft., flowed 25 bbl. in 24 hours, new pool in Rattlesnake field in fault block.

EAST TEXAS

BLACKFOOT—Anderson, September; R. B. Sanders and John W. Murchison 1 L. W. Sides, I. P. Rinehart Survey, 2 miles east Blackfoot, Pettit 9,736-48, 9,850-58 ft., IP 406 bbl.

COMO.—Hopkins, September; Delta Drilling Co. 1 W. H. Coker, Nacogdoches University Survey, 4 miles southeast Reilly Springs, lower Eagleford 4,150-65 ft., IP 147 bbl.

MOODY—Freestone, April; Barney Carter 1 W. L. Moody estate, H. Shepherd Survey, 2 miles northeast Fairfield gas area, Woodbine 4,200-10 ft., IP 37 bbl.

SAN AUGUSTINE—San Augustine, June; M. E. Davis 1 W. A. Johnson, Edmund Quirk Survey, 1 mile west Bland Lake, Pettit 8,130-60 ft., IP 92 bbl.

SCOTTSVILLE—Harrison, April; Arkansas Fuel Oil Co. 1 M. C. McCauley, P. Dougherty Survey, 3 miles east Scottsville, Travis Peak 6,446-52 ft., IP 30 bbl.

SHERMAN—Grayson, September; Standard Oil Co. of Texas 1 W. F. Covey-Bates, J. B. McAnair Survey, 2 miles north Sherman, sand 3,781-89 ft., IP 90 bbl.

YANTIS—Wood, August; Humble Oil & Refining Co. 1 Rio Oil Corp.; Jesse Walker Survey, 4 miles east Yantis, Rodessa 7,932-50 ft., IP 254 bbl. distillate.

UNNAMED—Cherokee, April; Standard Oil Co. of Texas 1 New Birmingham Development Co., G. E. Looney Survey, 2½ miles northwest Maydell, Bacon limestone 8,608-30, 8,638-52 ft., IP 21 bbl. distillate.

UNNAMED—Cherokee, December; General Crude Oil Co. 1 J. W. Summers, John Hunt Survey, 9 miles southwest Rusk, 4 miles west William Wise field, Woodbine 5,132-36 ft., IP 115 bbl.

UNNAMED—Harrison, November; Stanolind Oil & Gas Co. 1 George Slaughter, J. E. White Survey, 9 miles north Marshall, Pettit 6,356-86, 6,390-6,440 ft., IP 50 bbl. distillate.

NEW PAYS

CARTHAGE—Panola, November; Sun Oil Co. 1 Lela Smith, S. C. Hooker Survey, east flank of field, Lower Pettit 5,902-14 ft., IP 235 bbl.

CHAPEL HILL—Smith, September; Chapel Hill Gas System 1 Bina Rayford, Thomas Payne Survey, Travis Peak 8,100°8,308 ft., IP 100 bbl.

CHAPEL HILL—Smith, December; Chapel Hill Gas System 2 Y. B. Yancey, John Dillard Survey, Paluxy 5,594-5,615 ft., IP 225 bbl.

GRAPELAND—Houston, June; Lone Star Producing Co. 1 Dora Ritchie, I Grooms Survey, northwest flan of field, sub-Clarksville sand 5,885-96 ft., IP 119 bbl.

HAWKINS—Wood, July; Humble Oil & Refining Co. 1 P. W. McKnight, W. R. James Survey, on northeast flank of field, Rodessa 8,395-9,040 ft., IP 50 bbl. distillate.

JEFFERSON-RODESSA—Marion, November; P. W. Pewitt 1 W. C. Ralph, E. Ussery Survey, Pettit 6,432-54 ft., IP 470 bbl.

LASSATER—Marion, May; Magnolia Petroleum Co. and Tidewater Seaboard Oil Co. 1 Hall, M. W. Moody Survey, Travis Peak 8,736-50 ft., IP 116 bbl. distillate.

SAND FLAT—Smith, October; Hunt Oil Co. 1 Oliver-Black Unit, F. Flores Survey, Rodessa break in Massive Anhydrite 9,096-9,116 ft., IP 80 bbl.

EXTENSIONS

BOLIVAR—Denton, October; Anco Gas Corp. and C. B. Slemp 1-F B. B. Forrester, W. Nelson Survey, northwest of production, sand 1,598-1,606 ft., IP 28 bbl.

ELKHART—Anderson, March; Bluebird Investment Co. 1 J. H. Pearson, John Gossett Survey, 5 miles southwest Elkhart, Woodbine 5,503-18 ft., IP 528 bbl. distillate.

HUXLEY—Shelby, October; Humble Oil & Refining Co. 1 Elzie Fleming, John Hailey Survey, ½ mile east of production, Pettit 6,596-6,610 ft., IP 96 bbl. distillate.

LONGWOOD—Harrison, November; Sam E. Wilson 1 Hearne, W. C. Baker Survey, 5 miles east Leigh, Pettit 5,578-5,602 ft., IP 8,000,000 cu. ft. gas.

QUITMAN—Wood, August; B. F. Phillips 1 Mrs. H. Cathey, John Allen Survey, 1 mile west Quitman, Woodbine 4,046-85 ft., IP 12 bbl.

WASKOM—Harrison, July; Byrd Oil Corp. 1 Cleve B. Jobe, Sarah Reynolds Survey, 1 mile southwest Jonesville, Pettit 5,678-98 ft., IP 1,500 bbl. distillate, estimated.

WEST TEXAS

ADAIR—Terry, May; Amerada Petroleum Corp. 1 Sam Adair, Section 4, Block C-37, PSL Survey, 9 miles north of Cedar Lake field in Gaines County, San Andres 4,875-4,925 ft., IP 608 bbl.

BALLINGER—Runnels, November; Southern Minerals Corp. 1 K. V. Northington, T. Pratt Survey, 1½ miles west of Ballinger, Bend limestone 4,108-15 ft., IP 33 bbl.

BLOCK 39—Crockett, July; Stanolind Oil & Gas Co. 1-TT University, Section 12, Block 29, University lands, 12 miles southeast Barnhart, and ½ mile north 1-GG University, Detrital 8,044-52 ft., IP 63 bbl.

BLOCK 37—Crockett, October; Continental Oil Co. 1-S University A-12, Section 12, Block 47, University Lands, 5 miles southwest Barnhart field, Grayburg 2,142-73 ft., IP 17 bbl.

CHILDRESS—Crockett, August; Humble Oil & Refining Co. 1 Elizabeth C. Mitcham, Section 12, Block AB, Massey Survey, 14 miles northeast Ozona, Ellenburger 8,092-8,122 ft., IP 488 bbl.

CLARA COUCH WOLFCAMP—Crockett, June; Cities Service Oil Co., Humble Oil & Refining Co., and Plymouth Oil Co. 1-B J. W. Owens, Section 6, Block GG, H&OB Survey, 1½ miles south Olson field, Wolfcamp 5,668-85 ft., IP 597 bbl.

FRANK COWDEN ELLENBURGER—Ector, October; Phillips Petroleum Co. and The Texas Co. 1 McEntire, Section 18, Block 44, T&P Survey, 2 miles north North Goldsmith field, Ellenburger 8,060-8,135 ft., IP 2,616 bbl.

JORDAN CONNELL—Crane, September; The Texas Co. 31 W. E. Connell, Section 29, Block B-16, PSL Survey, 2 miles west of Jordan field, upper Clear Fork 4,660-85 ft., IP 299 bbl.

LANCASTER HILL—Crockett, April; Gulf Oil Corp. 1-R University, Section 14, Block 29, University Lands, 5½ miles southeast Clara Couch field, Grayburg 1,677-85 ft., IP 108 bbl.

MIDWAY LANE—Crockett, July; Sinclair Prairie Oil Co. and Atlantic Oil & Refining Co. 1-66 University, Section 30, Block 46, University Lands, 8 miles northeast Todd Deep field, Ellenburger 7,530-75 ft., IP 1,311 bbl.

NORTH RILEY—Gaines, September; Honolulu Oil Corp. 1 J. M. White et al, Section 404, Block G, CCSD&RGNG Survey, 12 miles west Seminole, Clearfork 6,930-60 ft., IP 158 bbl.

OATES—Pecos, May; Stanolind Oil & Gas Co. 1 J. S. Oates, Section 204, Block 3, T&P Survey, 23 miles southwest Fort Stockton, Rustler limestone 840-845 ft., IP 39 bbl.

RILEY—Gaines, June; Cities Service Oil Co. T. S. Riley estate, Section 361, Block G, CCSD&RGNG Survey, 9½ miles southwest Seminole, Clear Fork 7,045-7,237 ft., IP 42 bbl.

SHAFTER LAKE—Andrews, April; Fred Turner, Jr., 1 M. M. Fisher, Section 16, Block A-36, PSL Survey, Shafter Lake area, San Andres 4,340-4,420 ft., IP 135 bbl.

SHAFTER LAKE DEVONIAN—Andrews, October; Sinclair Prairie Oil Co., Cities Service Oil Co., and Skelly Oil Co. 1 University-Community 173, Section 25, Block 13, University Lands, 2 miles west Shafter Lake, Devonian 9,688-9,828 ft., IP 1,038 bbl.

SOUTH MIDLAND—Midland, February; Humble Oil & Refining Co. 1 Mary E. Turner, Section 43, Block 37, W. T. Holcombe Survey, 12 miles southwest Midland, Wolfcamp 8,500-65 ft., IP 139 bbl.

SPENCER YATES—Ward, February; J. W. Murchison 1 Mollie Spencer, Section 53, Block 34, H&TC Survey, 3 miles northwest Spencer field, Yates 2,697 ft., IP 72 bbl.

TIPPETT—Crockett, November; Byrd-Frost, Inc., and Gulf Oil Corp. 1 Mayberry, Section 39, Block 31, H&TC Survey, 6 miles southwest Crockett field, Wolfcamp 6,325-6,340 ft., IP 1,391 bbl.

TUNSTILL—Reeves, October; Texzona Producing Co. and Louis Crouch 1 Tunstill Bros., Section 10, Block 56, T&P Survey, 6 miles northeast Orla, Delaware sand 3,288-3,308 ft., IP 71 bbl.

UNIVERSITY-WADDELL ELLENBURGER—Crane, May; Gulf Oil Corp. 1-HH University, Section 3, Block 31, University Lands, 3½ miles north Block 31 field, Ellenburger 10,615-10,875 ft., IP 3,236 bbl.

VAUGHN—Crockett, September; Gar-Ter Drilling Corp. 1-S Weiner-Vaughn, Section 86, Block OP, GC&SF Survey, 6½ miles east Todd Deep field, San Andres 1,500-01 ft., IP 216 bbl.

VERHALEN—Reeves, July; Argo Oil Corp. 1 Dora Roberts, Section 294, Block 13, H&GN Survey, 24 miles south Pecos, Wolfcamp 9,917-10,853 ft., IP 71 bbl.

YARBROUGH & ALLEN—Ector, September; Humble Oil & Refining Co. 1 Yarbrough & Allen, Section 18, Block B-14, PSL Survey, 6 miles west Judkin, Ellenburger 10,515-10,620 ft., IP 867 bbl.

UNNAMED—Crockett, October; C. W. Brown 1-D A. C. Hoover, Section 10, Block 1, GC&SF Survey, 3½ miles south Shannon field, Grayburg 1,527 ft., IP 77 bbl.

UNNAMED—Crockett, July; Stanolind Oil & Gas Co. 1-GG University, Section 12, Block 39, University Lands, 12½ miles southeast Barnhart, Ellenburger 8,298 ft., IP 25 bbl.

UNNAMED—Crockett, November; Plymouth Oil Co. 1-O-A J. W. Owens, Section 6, Block GG, H&OB Survey, 1½ miles south Olson field, Soma sand 1,085-1,102 ft., IP 505,000 cu. ft. gas.

UNNAMED—Hockley, November; Seaboard Oil Co. 1 C. M. Wrenchey, Labor 25, League 732, Taylor CSL Survey, 8 miles northwest Levelland, San Andres 4,758-99 ft., IP 176 bbl.

UNNAMED—Mitchell, May; Tobe Foster 1 R. S. Brennand, Section 4, Block 28, T&P Survey, 2½ miles west of northern part Westbrook field, limestone pay 2,601 ft., IP 55 bbl.

EXTENSIONS

ADAIR—Gaines, October; Amerada Petroleum Corp. 3-A J. H. Hicks, Section 17, Block C-31, PSL Survey, south extension, IP 406 bbl.

CRANE-COWDEN—Upton, April; Marshall & Smith 1 Eva Mae Cole, Section 94, Block Y, F. Rooney Survey, 1 mile east of production, limestone 2,816 ft., IP 55 bbl.

DOLLAR HIDE—Andrews, September; Lion Oil Co. 1-B Tennie Cowden, Section 6, Block A-55, PSL Survey, west of production, Devonian 8,314 ft., IP 261 bbl.

FRANK COWDEN ELLENBURGER—Ector, November; Phillips Petroleum Co. 6 Embar, Section 17, Block 14, T&P Survey, southeast offset, Ellenburger 8,060-8,110 ft., IP 616 bbl.

FULLERTON—Andrews, September; Stanolind Oil & Gas Co. 2 E. T. Brooks, Section 9, Block A-48, PSL Survey, southwest of production, Clearfork 6,824 ft., IP 125 bbl.

KEYSTONE COLBY—Winkler, September; Richardson & Bass 1-C B. F. Jenkins, Section 5, Block 77, PSL Survey, north of production, Colby sand 3,450 ft., IP 114 bbl.

LEVELLAND—Hockley, September; E. Constantin, Jr., 1-A Coble, Labor 50, League 69, Hardeman CSL Survey, 5½ miles west Levelland, San Andres 4,790-4,855 ft., IP 630 bbl.

LEVELLAND—Hockley, September; James Fitzgerald, Jr., 1 W. T. Coble, Subdivision 46, League 69, Hardeman CSL Survey, 6 miles west Levelland, San Andres 4,785-4,4,828 ft., IP 486 bbl.

LEVELLAND—Hockley, October; L. G. Yarbrough & Son and W. A. Phillips 5-B W. T. Coble, League 68, Hardeman CSL Survey, 2 miles west Levelland field, San Andres 4,790-4,845 ft., IP 736 bbl.

LEVELLAND—Hockley, September; Stanolind Oil & Gas Co. 1-C Texas Land & Mortgage Co., Labor 5, League 30, Baylor CSL Survey, south of production, San Andres 4,701 ft., IP 61 bbl.

LION—Ward, September; Lion Oil Co. 7-B University, Section 1, Block 18, University Lands, northwest extension, Delaware sand 4,985 ft., IP 156 bbl.

MARTIN—Andrews, September; Shell Oil Co., Inc., and Superior Oil Corp. 1 Lockhart, Section 22, Block A-41, PSL Survey, east extension, Ellenburger 8,795 ft., IP 1,738 bbl.

MEANS—Andrews, October; Texmass Petroleum Co. 1 Parks Estate, Section 21, Block A-34, PSL Survey, 1½ miles west of northwest section of field, San Andres 4,335-4,625 ft., IP 80 bbl.

OLSON—Crockett, July; Plymouth Oil Co. 2-O-A J. W. Owens, Section 6, Block GG, H&OB Survey, 1 mile south of production, Wolfcamp 5,670 ft., IP 1,170 bbl.

SHANNON—Crockett, February; J. I. Moore 1 Shannon Estate-Amerada Petroleum Corp., Section 6, Block FF, B&M Survey, 2 miles southeast of production, San Andres 2,369 ft., IP 83 bbl.

SHANNON—Crockett, January; Moore Exploration Co. 1-4 A. C. Hoover "C," Section 4, Block FF, A. C. Hoover Survey, 1 mile south of production, San Andres 2,394 ft., IP 35 bbl.

SLAUGHTER—Hockley, November; Stanolind Oil & Gas Co. 1 F. F. Bozeman, Labor 11, League 43, Rains CSL Survey, 1½ miles northeast of production, San Andres 4,796-4,884 ft., IP 262 bbl.

TXL DEVONIAN—Ector, September; Phillips 1-P Phillips-TXL, Section 29, Block 45, T&P Survey, 1 mile north of production, Devonian 7,905 ft., IP 279 bbl.

TXL DEVONIAN—Ector, July; Shell Oil Co., Inc., 1-A Cochran, Section 34, Block 46, T&P Survey, 1 mile west of north end of field, Devonian 7,955 ft., IP 39 bbl.

TUNSTILL—Reeves, October; Texzona Producing Co. and Louis Crouch 1 John Camp, Section 14, Block 56, T&P Survey, 5 miles northeast of Orla, 1 mile southwest offset to discovery, and second well in field, Delaware sand 3,280-98 ft., IP 64 bbl.

TUNSTILL—Reeves, November; C & B Oil Co. and M. G. Hansbro 1 G. C. Fraser, Jr., et al, Section 3, Block 56, T&P Survey, Delaware sand 3,284-3,312 ft., IP 205 bbl.

UNIVERSITY-WADDELL—Crane, November; Gulf Oil Corp. 101-E Waddell, Section 27, Block B-25, PSL Survey, ½ mile north offset to 1-HH University, Ellenburger 10,-710-10,835 ft., IP 1,104 bbl.

WELCH—Dawson, October; Cities Service 1 Kirkpatrick, Section 70, Block M, ELRR Survey, west of production, San Andres 4,935-60 ft., IP 130 bbl.

YELLOWHOUSE—Hockley, October; Stanolind Oil & Gas Co. 4-A Tom Cobb, Labor 104-G, League 75, Haskell CSL, northwest of production, San Andres 4,506 ft., IP 164 bbl.

NEW PAYS

ANDECTOR—Ector, June; Plymouth Oil Co. 3-A-12 R. B. Cowden, Section 12, Block 45, T&P Survey, Clear Fork 6,200-85 ft., IP 168 bbl.

BLOCK 12—Andrews, January; Atlantic Refining Co. 1-E Texu, Section 18, Block 12, University Lands, Devonian 8,545-80 ft., IP 30 bbl.

DOLLAR HIDE—Andrews, January; Magnolia 2-B E. P. Cowden, Section 4, Block A-55, PSL Survey, Silurian 8,345-65 ft., IP 535 bbl.

DOLLAR HIDE—Andrews, October; Pure Oil Co. and Humble Oil & Refining Co. 1 E. P. Cowden, Section 24, Block A-52, PSL Survey, 1 mile north of production, Ellenburger 9,900-10,140 ft., IP 637 bbl.

FULLERTON ELLENBURGER—Andrews, November; Texas Pacific Coal & Oil Co. 17-E Emily Jackson, Section 17, Block A-32, PSL Survey, Wolfcamp 7,970-8,000 ft., IP 1,147 bbl.

FULLERTON ELLENBURGER—Andrews, June; Texas Pacific Coal & Oil Co. 14-D Emily Jackson, Section 17, Block A-32, PSL Survey, Devonian 8,120-8,280 ft., IP 1,422 bbl.

GOLDSMITH—Ector, April; Gulf Oil Corp. 421-D (formerly 421-E) C. A. Goldsmith, Section 15, Block 44, T&P Survey, Devonian 7,980-90 ft., IP 131 bbl.

GOLDSMITH—Ector, August; Gulf Oil Corp. 430-E C. A. Goldsmith, Section 15, Block 44, T&P Survey, Ellenburger 9,495 ft., IP 301 bbl.

JORDAN—Ector, March; Gulf Oil Corp. 1-A University-Fogelson, Section 7, Block 35, University Lands, Ellenburger 8,914 ft., IP 223 bbl.

NORTH RILEY—Gaines, October; Los Nietos Oil Co. (formerly Sun Oil Co.), 1 J. A. Sparks, Section 396, Block G, CCSD & RGNG Survey, San Andres 6,860-6,934 ft., IP 150 bbl.

TEXAS PANHANDLE

PETERSBURG—Hale, February; Stanolind Oil & Gas Co. 1 E. L. Fisher, Section 5, Block CL, ELRR Survey, 6 miles northwest of Petersburg, Cisco limestone (Pennsylvanian) 6,895-6,992 ft., IP 1,341 bbl.

UNNAMED—Gray, October; Phillips Petroleum Co. 1 Lucile, Section 103, Block 2, H&GN Survey, 10 miles west and 4 miles north Allenreed, and 2 miles south of oil production at Furneaux field, sand 2,765-2,909 ft., IP 3,500,000 cu. ft.

UNNAMED—Sherman, April; Phillips Petroleum Co. 1 Chuck, Section 5, Block 3-B, GH&H Survey, 22 miles southeast Stratford, sand 3,100-80, 3,015-90 ft., IP 9,800,000 cu. ft. gas.

SOUTHEAST NEW MEXICO

UNNAMED—Lea, February; Devonian Oil Co. 1 Browne-Federal, NW NW 19-9s-38e, San Andres 4,926 ft., IP 141 bbl.

UNNAMED—Lea, April; The Texas Co. 1 W. C. Garrett, SE NE 22-16s-38e, San Andres 5,300-5,400 ft., IP 15 bbl.

NEW PAY

JUSTICE—Lea, December; R. Olsen Oil Co. 1 Wimberly, SE NE 23-25s-37e, Glorietta 4,740-70 ft., IP 25 bbl. distillate.

EXTENSION

GRAYBURG-JACKSON—Eddy, August; Grayburg Oil Co. 13-B Keeley, NE SW NE 26-17s-29e, Loving sand 2,720 ft., IP 236 bbl.

SOUTHWEST TEXAS

AKIN—Duval, May; Rowden & Rowden et al 2 John W. Akin, in GB&CHG RR Survey 186, 11 miles south-southwest of Freer and 2 miles southeast of Cedro Hill field, IP 8,500,000 cu. ft. gas per day on open flow, through perforations 2,443-47 ft. in Government Wells sand.

ALLEN—Jim Hogg, May; Cam Corp. 1 John Allen, H&GN Survey 29, 3½ miles east of Randado, IP 2,900,000 cu. ft. gas per day open flow, from Mirando sand perforations at 2,932-37 ft.

BISHOP—Nueces, June; H. R. Smith & W. C. McBride, Inc., 1 W. H. Kaiser, Palo Alto Grant, 2 miles northwest of Bishop, IP 165 bbl. oil per day through 7/64-in. choke, through perforations at 7,133-36 ft.

BULLARD—San Patricio, October; A. O. Morgan 1 Ernest H. Lane, Coleman-Fulton Pasture Co. Subdivision of P. Fitzsimmons Survey, 5 miles southwest of Sinton and 2 miles southwest of South Sinton gas field, IP 16,500,000 cu. ft. gas per day on open flow with condensate, through perforations at 6,660-75 ft.

CAM (Gas)—Duval, January; Tom Graham & C. A. M. Corp. 1 Rosa V. Benavides, Lot 3, Section 24, Cole Petroleum Subdivision of Mariano Arispe Grant 75, 5 miles northwest of Bruni, 2 miles northeast of Ohern field and 1½ miles southeast of Cole field, IP 1,630,000 cu. ft. gas per day on open flow, through Yegua perforations at 3,319-25 ft.

CAM (Oil)—Duval, March; B. C. Graham & C. A. M. Corp. 2 Rosa V. de Benavides, Lot 3, Section 24, Cole Pet. Subsidivision, Mariano Arispe Grant 75, 5 miles northeast of Bruni and 660 ft. southeast of 1 Benavides gas discovery, IP 62 bbl. oil per day through 9/64-in. choke, perforations at 2,650-62 ft.

CECIL (Robinson)—Hidalgo, September; Coastal Refineries, Inc. & M. L. Massingill 1-A Garcia Land & Livestock Co., in Doss area in Porcion 43, 1 mile northeast of Texas Co. 1 Doss gas discovery, 6 miles north-northeast of Sullivan City and 5 miles northwest of Samfordyce, IP 50 bbl. oil per day through a 9/64-in. choke, through perforations in Frio at 4,020-23 ft.

CHARAMOUSCA-WILCOX—Duval, September; Magnolia Petroleum Co. 1-A Drought, in J. L. Saens Survey 154, 13 miles northwest of Freer, 1 mile northwest of Charamousca field, IP 2,031,000 cu. ft. gas per day and 16 bbl. per day condensate through a 5/16-in. choke, from Wilcox perforations at 6,545-65 ft.

CLOPTON—Starr, August; W. B. Jewel Osborn & Mid-Continent Petroleum Corp. 1 John Clopton, in Lot 19, Block 2, B. & B. Oil Co., Subdivision in Porcion 86, 6½ miles east of Rio Grande City, IP 200,000 cu. ft. gas per day open flow and 1 bbl. per day of oil, through Jackson perforations at 5,660-5,700 ft.

DEE DAVENPORT—Starr, March; Dee Davenport 1 Davenport-State, Survey 974, 13 miles northwest of Sullivan City, and 1½ miles north of Frost field, IP 600,000 cu. ft. gas per day and 6.2 bbl. per day condensate through 9/64-in. choke, from Frio perforations at 4,098-4,112 ft.

DEL MONTE—Zavala, February; Texas Co. 1 Cross S. Ranch Co., Block 42, Section 43, Cross S. Ranch Subdivision, Pedro Jose de Aguirre Grant, 6 miles northwest of Crystal City, IP 73 bbl. oil per day through 3/16-in. choke, from San Miguel (Taylor) through open hole 3,303-34 ft. Top of pay 3,304 ft.

DOSS—Hidalgo, March; The Texas Co 1 J. M. Doss, in Xavier Zamora Porcion 41, 5 miles northeast of Sullivan City, near Starr County line, 5 miles northwest of Samfordyce, IP 18,000,000 cu. ft. gas per day, on open flow (dry gas), from Frio perforations at 3,832-40 ft.

EAST ALTA MESA—Brooks, May; Standard Oil Co. of Texas 7 B. G. de Gardia Lease 1, Share 8-A, La Entantada Grant, IP 9 bbl. net oil per day, through perforations 6,315-24 ft.

EAST BOYLE—Starr, August; Selby-Walker Corp. & C. G. Glasscock 1 M. M. Garcia, in Block 3, Survey 913, 12 miles northeast of Rio Grande City, just east of Boyle field, IP 3,000,000 cu. ft. gas per

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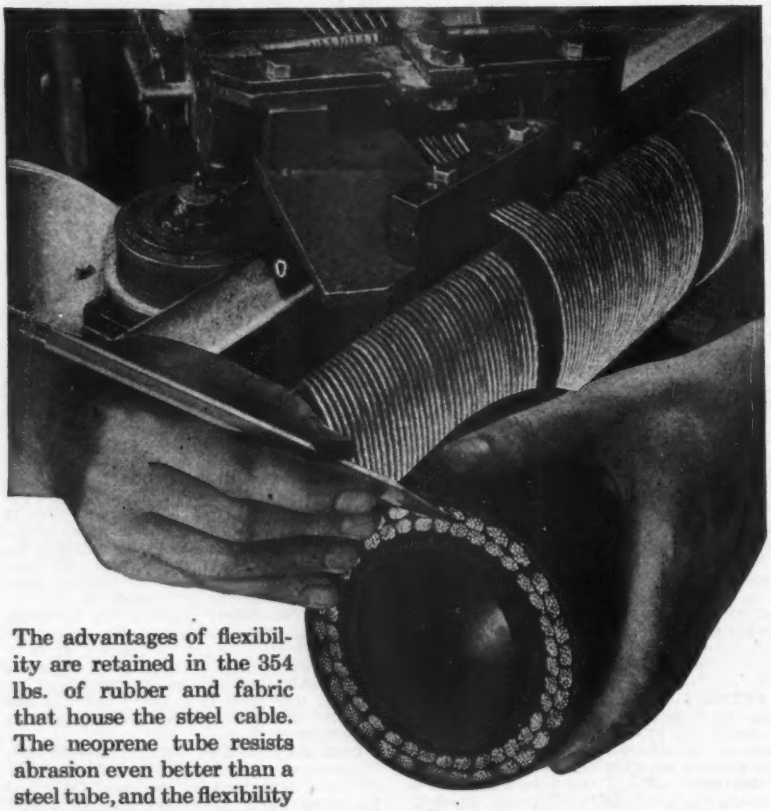

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EAST IMOGENE—Atascosa, October; Humble Oil & Refining Co. 1 Nelle, Gordon & C. G. Dinsmoore, Tract 1 BBB&C Survey 1,060, 6½ miles southeast of Pleasanton, 5 miles east of Imogene field, IP 3 bbl. oil per day through 3/16-in. choke, from Edwards perforations at 8,093-8,104 ft.

EAST PREMONT—Jim Wells, September; Magnolia Petroleum Co. 103 A. A. Seeligson, in John H. Houghton Survey 286, 2 miles west of Seeligson field and 1½ miles northwest of South Haldeman field and 1½ miles southeast of old Premont field, IP 144 bbl. oil per day through a ¼-in. choke, from Frio (Zone 22) perforations 5,857-62 ft.

EDROY—San Patricio, June; Southern Minerals Corp. 1 M. O. McGloin, in San Patricio De Hibernia Grant, 2½ miles west-northwest of Edroy and 3½ miles east-northeast of San Patricio, IP 3,195,000 cu. ft. gas per day through a ¼-in. choke, from Frio perforations at 5,955-61 ft.

FENTRESS—Caldwell, March; J. G. Pundt et al 1 C. F. Richardson et al, Andrew Churchill Survey, 5 miles southwest of Lockhart, IP 67 bbl. oil per day on pump, no gas, through open hole in Austin chalk at 1,606-64 ft.

FULTON BEACH—Aransas, July; William Herbert Hunt Trust Est. and Geo. W. Graham 1 Spence-Kent-Crane, in C. O. D. Gilliland Survey, 4½ miles north-northeast of Rockport, on Live Oak Peninsula. Dual completion. IP 5,050,000 cu. ft. gas per day open flow with condensate through perforations in Oligocene at 7,058-65 ft., IP 186 bbl. oil per day through 9/64-in. choke, through perforations at 7,126-36 ft.

HOLMAN—Edwards, January; J. O. Rogers Oil Co. 1 J. S. Holman et al, GCSD&RGNG Survey 24, in northwest part of Edwards County: IP 2 bbl. oil per day on pump through open hole in Ellenburger at 548-80 ft.

JAVELINA—Hidalgo, December; Continental Oil Co. 1 Lloyd M. Bentsen, in Los Guages Segundo Flores Grant, 8 miles east of Rincon field and 23 miles northwest of Edinburg, IP 225 bbl. oil per day through 3/16-in. from open hole 5,389-5,421 ft.

JAY SIMMONS—Starr, September; Jay Simmons et al 1 First National Bank of Mission, in San Jose Grant, 5 miles northeast of Delmita, 2½ miles southeast of Kelsey-Deep field and 3 miles north of La Reforma field, IP 130 bbl. oil per day on pump, from Vicksburg perforations at 6,112-17 ft.

JOE MOSS—Zapata, November; Moss & Watson 4 Amelia de O. Vela, in El Grullo Grant, 18 miles northeast of Zapata and 1 mile north of Charco Redondo field, IP 27 bbl. oil per day on pump, no gas, through open hole at 760-71 ft., top pay 757 ft.

JOLIET—Caldwell, June; W. Killam 2 Andrew J. Rodenberg, in Guadalupe College Survey, in old Burdette Wells area, 6 miles south of Lockhart, IP 1,015 bbl. oil per day on open flow, and 110,000 cu. ft. gas per day, from open hole in Austin Chalk at 2,085-2,173 ft.

KENNARD—Starr, February; Coastal Refineries, Inc. and W. D. Kennard 1 Geo. Coates-T. E. Vessels, Jr., in Tract 5, Porcion 93, east of Boyle field and south of Rincon field, IP 38 bbl. oil per day through 3/16-in. choke, from Basal Frio perforations at 3,870-82 ft.

LACY—Hidalgo, January; Roger Lacy 1 Fee, in Section 22, American Rio Grande Land & Irrigation Co., Subdivision in J. J. H. de Bali Grant, 6 miles northeast of Mercedes, dual completion, IP 9,600,000 cu. ft. gas on open flow, with condensate from Frio perforations 7,455-65 ft., and IP 74 bbl. oil per day on gas lift, from perforations in Frio at 7,983-88 ft.

LITTLE ALAMO—McMullen, June; Newman Bros. & Skinner & Eddy Corp. 1-B South Texas Syndicate, in E. M. Beal Survey 28, 16 miles southwest of Tilden and 14 miles south-southeast of Fowerton, and 2 miles southwest of Greens Branch field, IP 48 bbl. oil per day on pump, no gas, from Queen City sand open hole at 2,286-93 ft.

LOS INDIOS (Oil)—Hidalgo, September;

Best by TEST

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The Century Recording Truck is a completely self-contained unit. And all components are designed and manufactured by Century. The operator has within easy reach finger-tip control of all his instruments.

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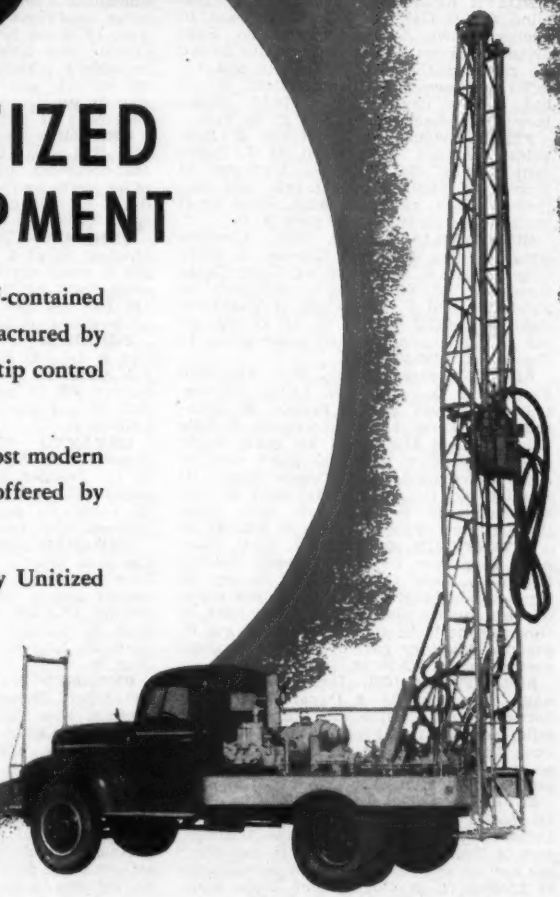

Century

CENTURY GEOPHYSICAL CORP.

TULSA, OKLAHOMA

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149 Broadway

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The Chicago Corp. 7 W. L. Goldston et al, in Santa Anita Grant, IP 86 bbl. oil per day through 3/32-in. choke, through perforations at 7,113-22 ft.

MANTOR-BRIGGS — Nueces, May; Renwar Oil Corp. 1 H. C. Mantor & R. C. Briggs, in Briggs and Kuykendall Subdivision, 4 miles northwest of Banquette, in Casa Blanca Grant, 2 miles northwest of Agua Dulce field, and 3 miles northeast of Richard King field, dual completion, IP 2,400,000 cu. ft. gas per day through ¼-in. choke, from Frio perforations at 4,950-61 ft., and IP 133 bbl. oil per day through 5/32-in. choke, from Frio perforations at 6,016-21 ft.

McGILL—Kenedy, February; Atlantic Refining Co. 1 H. F. McGill et al, Santa Rosa de Arriba Grant, IP 47 bbl. oil per day through 9/32-in. choke, from Frio-Vicksburg section perforations at 7,676-80 ft. This well is now shut in.

NEW ANGELITA—San Patricio, December; Continental Oil Co. 1-S J. F. Welder, in V. Tares & Pedro Villareal Survey, 5 miles south-southeast of Edroy, 4 miles northwest of Calallen, IP 129 bbl. oil per day through a ¼-in. choke, through perforations at 5,976-98 ft.

NICHOLSON — Webb, October; Humble Oil & Refining Co. 1 W. R. Nicholson, BS&F Survey 985, 23 miles north-northeast of Aguilares on Sutton Ranch, 12 miles west-northwest of Lopez field and 13 miles north-northwest of Carolina-Texas field, IP 20 bbl. oil per day through 3/16-in. choke, from Wilcox perforations at 5,574-77 ft.

NORTH AVIATOR—Webb, March; Dulaney Oil Co. 22 Puig et al, Block 55, Albercas Grant, 10 miles south of Mirando City, IP 57 bbl. oil per day on pump, through perforations 1,790-1,800 ft. in Mirando sand.

NORTH RICARDO—Kleberg, July, Stanolind Oil & Gas Co. 2 J. O. Johnson in Kleberg Town & Improvement Co. Subdivision, Rincon de Santa Gertrudes Grant, 3½ miles southeast of Kingsville and 1½ miles northwest of Ricardo field, IP 74 bbl. oil per day through 3/16-in. choke, through perforations 6,040-46 ft. in Frio.

PEREZ — Webb, April; Hickok & Reynolds 1 Amado Perez et al, in J. Poitevent Survey 459, 10 miles northeast of Bruni, IP 1,600,000 cu. ft. gas per day through ⅜-in. choke, through (Cole sand) Whitsett perforations at 1,266-76 ft.

QUINTANILIA—LaSalle, May, Newman Bros. Drilling Co. and Skinner & Eddy Corp. and W. S. Appleyard 1-C South Texas Syndicate, 15 miles south-southwest of Fowlerton and 7 miles south of Washburn field, in H&GN Survey 76, IP 77 bbl. oil per day on pump, through perforations in Carrizo at 3,638-58 ft.

RIVERS—Nueces, April; Pan American Production Co. and Jack Little, Trustee, 1 Loruth Smith Rivers, Section 26, Richard King Farm Lots Subdivision, 1 mile west of Agua Dulce and 2½ miles south of Richard King field, 3½ miles west of Agua Dulce field, in R. Garcia Grant, IP 7,800,000 cu. ft. gas per day and 20 bbl. of condensate per day on open flow, through perforations in Frio at 5,528-39 ft.

SEVENTY-SIX (Gas)—Duval, April; Magnolia Petroleum Co. 1 (76) Duval County Ranch Co.-State, CCSD&RGNG Survey 76, 6 miles northwest of Freer, 2 miles south of Casa Blanca field and 4 miles west of Government Wells field, IP 4,500,000 cu. ft. gas per day (dry gas) open flow, through perforations 1,323-35 ft. in Cole sand.

SEVENTY-SIX (Oil)—Duval, July; Magnolia Petroleum Co. 2 Duval Ranch-State Section 76, in CCSD&RGNG Survey 76, 6 miles northwest of Freer, 2 miles south of Casa Blanca field, IP 67 bbl. oil per day on pump, through perforations in Cole sand at 1,322-27 ft.

SEVERIANO—Duval, June; R. Thos. McDermott 1 Casper Guerra, Severiano, in J. Poitevent Survey 167, 15 miles north-northeast of Bruni, IP 5,250,000 cu. ft. gas (dry) per day on open flow, through perforations at 2,540-45 ft. in Government Wells sand.

SOMMER—Nueces, April; Mid-Continent Petroleum Corp. 1 John Sommer, Section 24, Benton Pasture Subdivision, 1½ miles south of Agua Dulce, 2½ miles west of Agua Dulce field and 3 miles north of Stratton field, IP 122 bbl. oil per day through 3/16-in. choke, from Frio perforations at 5,982-88 ft.

SOUTH HALDEMAN—Jim Wells, February; Magnolia Petroleum Co. 1 David Clarke, Section 62, R. P. Haldeman Subdivision of Seeligson Ranch, 7 miles southwest of Ella, 1 mile west of Seeligson field, IP 98 bbl. oil per day through a ⅛-in. choke, from (Zone 15) Frio at 4,495-4,510 ft.

SQUIRE—Duval, June; Santa Clara Oil Co. and John E. Camp & Sons 1-C Jas. F. Welder Heirs, in J. Pointevent Survey 221, 13 miles northwest of San Diego and 3 miles south of Strake field, IP 105 bbl. oil per day through a 10/64-in. choke, from Government Wells sand at 3,274-77 ft., open hole.

VELA—Zapata, June; J. O. Moss et al 3 Amelia O. de Vela et al, in Block 28, Share 3, of El Grullo Grant, 1 mile north of Charco Redondo field, IP gas well, shut in, perforations in McElroy 574-80 ft.

VIOLA—Nueces, May; Renwar Oil Corp. 1 W. B. McCampbell et al, BS&F Survey 421, 10 miles west of Corpus Christi, IP 40 bbl. oil per day through 7/16-in. choke, from Frio perforations 5,542-52 ft.

WARDLOW—Edwards, September; Babb & Dillard 1 L. J. Wardlow, Section 7, GC&SF Survey, Block F, 14 miles from north line and 8 miles from west line of county, IP 25 bbl. per day on pump, from Ellenburger 237-248 ft., open hole.

WATKINS—Webb, May; M. L. Massingill and 56 Petroleum Co. 2-A, Geo. B. Parr (Watkins Ranch), San Casimire Grant, 5 miles southwest of Adami field, IP 28 bbl. per day on pump, through open hole 876-91 ft. in Mirando sand.

WEST ALICE—Jim Wells, February; H. J. Mosser & W. R. Quin 1 Chas. Muil, in Comanche Creek Irrigation Co. Survey, 6 miles southwest of Alice and 1½ miles west of Alice field, IP 15 bbl. dark condensate and 1,400,000 cu. ft. gas per day through a 7/32-in. choke, estimated 8,000,000 cu. ft. gas per day on open flow, shut-in pressure 1,650 psi., perforations in Vicksburg at 5,012-20 ft.

UNNAMED—Duval, July; J. W. Gorman 3 F. D. Lowe, AB&M Survey 76, 1½ miles east-northeast of Labbe field and 1¼ miles south-southeast of County Line field discovery, IP gas well shut in, perforations 2,468-74 ft.

UNNAMED — Duval, August; Gravis & Mitchell et al 1 Robert Schallert, Survey 255, 6 miles north of Benavides on northwest flank of Palangana salt dome, IP 150 bbl. oil per day on pump, through perforations at 1,770-85 ft.

UNNAMED—Duval, September; Edwin B. Cox & Jake L. Hamon and Geo. H. Coates 1-A James R. Dougherty, in Eliz. J. Gravis Survey 508, 12 miles south of Freer, IP 23 bbl. oil per day on pump, perforations at 2,278-80 ft.

UNNAMED — McMullen, August; I. K. Howeth 2-A Annie Graves Dolph et al, in H. Pressler Section 53, Shiner Ranch area, 6½ miles southwest of Ezzell field, IP 1 bbl. oil per day on pump, no gas, through open hole at 1,386-98 ft.

UNNAMED — Medina, August; John F. Camp & Sons 1 John F. Camp, in J. B. Zerr Survey 48, in extreme southeast corner of county and 3½ miles southeast of Devine, IP 5 bbl. oil per day on pump test, shut in, through perforations in Navarro sand at 2,240-50 ft. This well has been shut in.

UNNAMED—Nueces, January; Rand Morgan 1-Fee, Richard King area, Section 5, Richard King farm lots, 1 mile northeast of Richard King field, IP 41 bbl. oil per day through 3/32-in. choke, perforations 5,605-09 ft.

UNNAMED — Nueces, October; Lonnie Glasscock 1-A Kansas City Life Insurance Co., F. Z. Bishop Palo Alto Subdivision, ¾ mile east of nearest Agua Dulce field production and ⅜ mile northeast of nearest Stratton field production, rework job on old dry hole, IP 27 bbl. oil per day through ½-in. choke, no gas, through perforations at 6,305-25 ft.

UNNAMED—Starr, January; V. F. Neuhaus 1 Loreto Canales, 23 miles north of Roma, in Share 2, Parcel "B" Sacatosa Grant, (originally completed as dry hole in 1945), IP 2 bbl. oil per day on pump, no gas, perforations at 1,707-14 ft.

UNNAMED—Zapata, November; Rodney DeLange 1 E. & F. Cuellar, in E. & F Cuellar Survey 246, 5 miles northwest of Jennings field, 9 miles northwest of Randado, IP gas well, no gage, shut in, perforations at 1,037-46 ft.

UNNAMED—Guadalupe, January; Wiegand Well Servicing Co. 1 L. A. Anderson, in Harriet Cottle Survey, 2 miles northwest of Sullivan and ½ mile southwest of old Luling field, IP 2 bbl. oil per day on pump, through open hole 1,850-2,050 ft., in Austin chalk.

EXTENSIONS

AGUA DULCE—Neuces, October; Lonnie Glasscock 1 Sam Countiss, et al, V. L. de Herrera Grant, 6 miles northeast of Banquete, 1¼ miles north-northeast of north extension production at Agua Dulce, IP 121 bbl. oil per day through 9/64-in. choke, through perforations at 5,095-99 ft. Operators have asked for new field designation and allowable for this well.

BLUCHER—Jim Wells, October; Blanco Oil Co. & A. A. Buchanan 1 Conrad Blucher et al, in Mrs. L. Best Survey, ¾ mile northeast of Blucher field, 7 miles southeast of Premont. Dual completion. Top pay 7,205 ft., perforations 7,205-08 ft., IP 165 bbl. oil per day through ⅛-in. choke. Top pay 7,440 ft. Vicksburg, perforations 7,442-46 ft., IP 166 bbl. oil per day through a ⅛-in. choke.

CAM—Duval, June; Southern Minerals Corp. 3 Juan Benavides, 1 mile south of Cam field, in El Mesquite Grant, top pay 2,638 ft., perforations 2,638-48 ft., IP 26 bbl. net oil per day on gas lift, 40 per cent water.

CHARLOTTE—Atascosa, October; Lewis Oil Co. 1 Marrs McLean, in Peter Bluntzer Survey 6, 1 mile east of Frio County line, IP 77 bbl. oil per day through a ⅛-in. choke, through open hole at 5,180-5,267 ft. in Navarro sand, top pay 5,177 ft.

SAN SALVADOR—Hidalgo, May; Magnolia Petroleum Co. 1 Santa Cruz Farms, in San Salvador del Tule Grant, 1¼ miles south of production and 4 miles southeast of Faysville, top pay 7,672 ft., Frio perforations 7,672-92 ft., IP 67 bbl. condensate per day through 5/16-in. choke.

SOUTH WESLACO — Hidalgo, May; La Gloria Corp. 3 South Weslaco Unit, in Llano Grande Grant, 3½ miles west of Progresso and 4½ miles south-southwest of Weslaco, top pay 7,345 ft., perforations 7,345-55 ft., IP 5,000,000 cu. ft. gas per day on open flow, 40 bbl. condensate per day, flowing through 5/16-in. choke, gravity 53.1°.

NEW PAYS

AUGA DULCE—Nueces, February; L. M. Lockhart 2 F. & G. Prochaska, in V. L. de Herrera Grant, 5 miles northeast of Banquette, IP 141 bbl. oil per day from Frio pay at 6,585-98 ft.

AGUA DULCE—Nueces, March; L. M. Lockhart 1 A. J. Till, in V. L. de Herrera Grant, IP 155 bbl. oil per day through a 9/64-in. choke, Frio perforations 6,619-22 ft.

AGUA DULCE—Nueces, May; Puenticitas Oil Co. 1 M. G. Perry, Partn. of Wright Lands, V. L. de Herrera Grant, IP 27 bbl. oil per day, through 3/32-in. choke, Frio pay 6,812-23 ft.

ALICE—Jim Wells, March; Tom Graham 1 Trussell Unit 1, Share 6, La Vaca Grant, IP gas-condensate well on 3/16-in. choke, no gage, Frio perforations 4,338-52 ft.

ALTA MESA—Brooks, September; Standard Oil Co. of Texas 38 Mestena Oil & Gas Co. 1, in La Mestena Grant, dual completion; IP new sand, Frio perforations 4,517-20 ft., 110 bbl. oil per day through 3/16-in. choke, IP perforations 4,560-64 ft., 47 ft. oil per day through 9/64-in. choke.

ALTA MESA—Brooks, May; Standard Oil Co. of Texas 1 Mestena Oil & Gas Co., in La Mestena Gonzales Grant, Section 5, IP 77 bbl. oil per day through 3/16-in. choke, Frio perforations 5,194-5,203 ft.

ALTA MESA—Brooks, March; Standard Oil Co. of Texas 32 (Lease 1), Mestena Oil & Gas Co., in La Mestena & Gonzalena Grants, dual completion: IP 142 bbl. oil

through perforations 4,519-21 ft., IP 70 bbl. oil per day through perforations 4,965-70 ft.

BISHOP—Nueces, August; H. R. Smith & W. C. McBride, Inc., 1 King Ranch, Section 153, Bishop Subdivision of Weil Ranch, IP 66 bbl. oil per day through 7/32-in. choke, through Vicksburg perforations 7,800-34 ft.

BORREGAS—Kleberg, March; Humble Oil & Refining Co. 7 King Ranch-Borregas, in Santa Gertrudis Grant, IP 95 bbl. oil per day through ⅛-in. choke, Vicksburg perforations 7,076-81 ft.

BORREGAS—Kleberg, May; Humble Oil & Refining Co. 10 King Ranch-Borregas, in Santa Gertrudis Grant, IP 86 bbl. oil per day through ⅛-in. choke, Frio perforations 6,526-36 ft.

BORREGAS—Kleberg, August; Humble Oil & Refining Co. 15 King Ranch-Borregas, in Santa Gertrudis Grant, IP 99 bbl. per day through a ⅛-in. choke, Frio perforations 5,148-55 ft.

BORREGAS—Kleberg, September; Humble Oil & Refining Co. 9 King Ranch-Borregas, in Santa Gertrudis Grant, IP 168 bbl. oil per day through a ⅛-in. choke, Frio perforations 6,094-99 ft.

CAGE—Brooks, November; Shell Oil Co., Inc., 1-C Jimmie Lenora Cage, in Leonardo Vargas Survey, 7 miles southwest of Falfurrias, IP 3,700,000 cu. ft. gas per day and 89 bbl. condensate per day through a ¼-in. choke, perforations 7,620-30 ft.

DEE DAVENPORT—Starr, April; Dee Davenport 2 Davenport-State, Survey 974, 2,300 ft. northeast of 1 Davenport-State gas discovery well, IP 146 bbl. oil per day through 9/64-in. choke, Frio perforations 4,182-92 ft. First oil well in field.

EAST—Jim Hogg, August; Texas Co. 1 A. K. East, in Santo Domingo de Arriba, Antonio Ysaguirre Grant, IP 9,000,000 cu. ft. gas per day open flow, Hockleyensis perforations 3,955-59 ft.

EAST FALFURRIAS—Kleberg, March; Shell Oil Co., Inc., 1 W. P. Wright, in El Paisano Ramon de la Garza Grant, 5 miles southeast of La Gloria, IP 6,400,000 cu. ft. gas and 95 bbl. condensate per day through ⅜-in. choke, Vicksburg perforations 9,150-69 ft. and 9,195-9,207 ft.

EAST PREMONT—Jim Wells, November; Magnolia Petroleum Co. 107 A. A. Seeligson, in Jas. A. Houghton Survey, 4 miles northwest of Premont, IP 141 bbl. oil per day through a 5/32-in. choke, through perforations at 4,688-95 ft., top pay 4,688 ft.

EAST WHITE POINT—San Patricio, May; Plymouth Oil Co. 6 F. H. Ficke, Geo. H. Paul's subdivision of C.F.P. Co. lands, Section 50, IP 65 bbl. oil per day through 9/64-in. choke, Frio pay 6,376-94 ft.

EAST WHITE POINT—San Patricio, December; Plymouth Oil Co. 3-G N. K. & L. B. Cole, in Geo. H. Paul's subdivision of Coleman-Fulton Pasture, IP 242 bbl. oil per day through a ⅛-in. choke, through perforations at 6,784-87 ft.

FLOUR BLUFF—Nueces, August; Humble Oil & Refining Co. 9 J. O. Phillips, in Flour Bluff & Encinal Farm & Garden Tracts, Lot 1, Block 55, IP 808,000 cu. ft. gas per day and 16 bbl. condensate per day through a ⅛-in. choke, Frio-Vicksburg pay 8,288-98 ft.

GYP HILL—Brooks, October; Sun Oil Co. 1 Perez Unit, in Share 9, S. Perez Survey, IP 83 bbl. condensate per day and 2,016,000 cu. ft. gas per day through a 3/16-in. choke, Frio perforations 6,790-6,810 ft.

JAY SIMMONS—Starr, November; Jay Simmons, et al, 2 First National Bank of Mission, in Share 3, San Jose Grant, IP 176 bbl. oil per day, pay 6,423-33 ft.

KELSEY-DEEP (SOUTH)—Starr, April; Phillips Petroleum Co. 1 "Eloy" (Francisco E. Perez, et al), in Santa Cruz Grant, dual completion, new pay topped at 5,388 ft., Jackson perforated 5,400-12 ft., IP 218 bbl. oil per day through 5/32-in. choke. IP: perforations 5,988-6,000 ft., 160 bbl. oil per day.

KELSEY (SOUTH)—Starr, March; C. P. Burton et al 2 Mauro Villareal, tr. 5, Partn. 2, Santa Cruz Grant, new pay top 6,062 ft., perforations 6,070-80 ft., IP 145 bbl. oil per day through 9/64-in. choke, dual completion, IP: perforations 5,960-70 ft., 144 bbl. oil per day through a ⅛-in. choke.

LA GLORIA—Jim Wells, April; Magnolia Petroleum Co. 1-A El Contesto unit, in Los Olmos & Loma Blanca Grant, IP 92 bbl. oil per day through ⅛-in. choke, new pay Frio 7,300-10 ft.

LA GLORIA—Jim Wells, May; Republic Natural Gas Co. 2-A Chas. L. Scott, Tr., Lot 9, Block 4, subdivision of lands adjoining townsite of La Gloria, dual completion, IP 114 bbl. oil per day through perforations 6,374-81 ft. IP: new sand Frio (Scott sand) 6,598-6,604 ft., 109 bbl. oil per day.

LA GLORIA—Brooks, July; Ralph E. Fair, Inc., & Jack Woodward, Inc., 10 Fair-Woodward Fee, two new pays, dual completion, old well drilled deeper (formerly La Gloria Opr. Comm. 5 South La Gloria unit), IP 183 bbl. oil per day through perforations 6,882-92 ft., LaGloria-Hammond sand; IP 171 bbl. oil per day through perforations 6,980-90 ft., Frio-Vicksburg LaGloria-Atlee "A" sand.

LA GLORIA—Brooks, July; Magnolia Petroleum Co. 4 T. S. Proctor, Lot 11, Block 2, Falfurrias Farm & Garden Tracts, IP 24 bbl. oil per day through perforations 7,483-93 ft. in Vicksburg (Proctor sand).

LA GLORIA—Brooks, September; Magnolia Petroleum Co. 1 Lohmann Hrs., in Falfurrias Farm & Garden tracts, ½ mile northeast of Falfurrias, on southeast flank of field, IP 2,460,000 cu. ft. gas per day and 39 bbl. condensate per day through 5/17-in. choke, Vicksburg perforations 8,795-8,828 ft.

LA GLORIA—Brooks, September; Ralph E. Fair, Inc., & Jack Woodward, Inc., 15 Fee, Lot 2, Block 12, Falfurrias Farm & Garden tracts, IP (new pay) 216 bbl. oil per day through perforations in Frio (Kelly) zone at 6,271-83 ft., dual completion, IP 173 bbl. oil per day through perforations in Arguellez zone at 6,389-6,419 ft.

LA GLORIA—Jim Wells, December; Magnolia Petroleum Co. 1 Ed L. Weathers, in Lot 2, Block 8, subdivision of lands adjacent townsite of La Gloria, dual completion, IP 74 bbl. oil per day through 5/32-in. choke from Loma Blanca sand perforations at 6,525-42 ft., IP 145 bbl. oil per day through 9/64-in. choke from Stanley sand (new pay), perforations at 7,273-78 ft. Top of pay 7,270 ft.

LITTLE ALAMO—McMullen, July; Newman Bros. & Skinner & Eddy Corp. 2-B South Texas Synd., in E. M. Beal Survey 28, IP 127 bbl. oil per day through Carrizo-Wilcox perforations 4,078-81 ft.

LOS INDIOS—Hidalgo, July; Chicago Corp. 3 Richard King Est., in San Salvador Del Tule Grant, IP 1,325,000 cu. ft. gas per day on open flow, and 1,272,000 cu. ft. gas per day through ¼-in. choke, through perforations 8,447-63 ft.

LUBY—Nueces, August; Seaboard Oil Co. 22 James Luby, in Canutillo Colony Ditch Co. Survey, old well drilled deeper, IP 21,500,000 cu. ft. gas per day and 322 bbl. condensate per day on open flow, shut-in pressure 2,720 psi., through Frio perforations at 6,840-50 ft.

LUBY—Nueces, October; Sun Oil Co. 1 G. H. McCann, Canutillo Colony Ditch Co. Survey, old well deepened, IP 16 bbl. oil per day through a ⅛-in. choke, through Frio perforations at 6,131-35 ft.

MIDWAY—San Patricio, March; British American Oil Producing Co. 2 D. I. Coggin, Section 82, Geo. H. Paul's subdivision (worked over), IP 21,000,000 cu. ft. gas per day on open flow (dry gas), through Frio perforations 3,647-53 ft.

MIDWAY—San Patricio, August; F. M. Boykin, Jr., 10 C. V. Jones, in Section 72, Geo. H. Paul's subdivision of Coleman-Fulton Pasture lands, IP 122 bbl. oil per day through ⅛-in. choke, through Frio perforations 5,045-47 ft.

MIDWAY—San Patricio, August; F. M. Boykin, Jr., 1 Hill-Jones Communitized lease, Section 72, Geo. H. Paul's subdivision, of C.F.P. Co. lands (worked over), originally completed as gas-condensate well, but started making oil and recompleted for IP 82 bbl. oil per day through a ⅛-in. choke through Frio perforations at 6,177-82 ft.

McALLEN—Hidalgo, March; Coastal Refineries, Inc., & V. E. Cook & Charles E. Thompson 1 Mrs. Zillah Hansen, in Porcion 67, 1 mile east of McAllen, IP 85 bbl. condensate per day through a 3/16-in. choke, through Vicksburg perforations at 10,090-10,180 ft., top of pay 9,990 ft.

McALLEN—Hidalgo, November; Coastal Refineries, Inc., & Mayfair Minerals 1 Jackson-Harrison, in Steele and Pershing Subdivision, of J. A. Villarreal Porcion 64, 2 miles northeast of McAllen, old well drilled deeper, IP 5,000,000 cu. ft. gas per day on open flow, with condensate, through perforations at 6,926-36 ft.

NORTH MINNIE BOCK—Nueces, April; Atlantic Refining Co. 1 Mrs. J. R. Parr, Joaquin Lopez de Herrera Grant, Section 46, Geo. H. Paul's subdivision of Driscoll Ranch, IP 30 bbl. oil per day through 3/16-in. choke, through Frio perforations at 7,680-89 ft.

NORTH KING—Nueces, June; Rand Morgan 1-B Fee in S. A. de Agua Dulce Grant, 8 miles north of Agua Dulce, dual completion, new pay topped at 4,978 ft., IP 1,235,000 cu. ft. gas per day through Frio perforations 4,978-88 ft., IP 1,650,000 cu. ft. gas per day through 3/16-in. choke, through perforations 5,145-52 ft.

NORTH SUN—Starr, March; Sun Oil Co. 4 Lee M. Green, in Santa Teresa Grant, IP 2 bbl. of condensate per day through a 9/64-in. choke, through Vicksburg perforations at 6,470-80 ft.

NORTH SUN—Starr, November; Sun Oil Co. 1 Enrique Garza, in La Sal Colorado Grant, ½ mile north of regular North Sun field production, IP 128 bbl. oil per day through 11/64-in. choke, through perforations at 7,022-37 ft.

PIEDRAS PINTAS—Duval, December; H. H. Howell 2 Magnolia Petroleum Co., in J. Poitevent Survey, IP 265 bbl. oil per day through a 3/16-in. choke, thrqugh perforations at 2,190-98 ft., top of pay 2,182 ft.

PIEDRAS PINTAS—Duval, August; H. H. Howell 9 B. G. Parr, in J. Poitevent Survey 185, IP 240 bbl. oil per day, top pay 3,139 ft., Upper Government Wells sand perforations 3,152-57 ft.

PITA—Brooks, January; Humble Oil & Refining Co. 6-B D. J. Sullivan, in San Antonio de Encinal Grant, IP 244 bbl. oil per day through ⅛-in. choke, top pay 7,766 ft., perforations 7,771-80 ft.

ROBINSON—Duval, September; Butcher-Arthur, Inc., & Taylor Refining Co. 1 M. Serna, in Survey 290, originally completed through perforations at 4,004-10 ft., reworked and completed through perforations at 3,915-26 ft., top pay 3,905 ft., IP 35 bbl. oil per day through a 3/16-in. choke.

ROBSTOWN—Nueces, November; Comanche Corp. 1 A. Studer, Section 7, on Lot 3, George H. Paul's subdivision, of Driscoll Ranch, in M. L. de Herrera Grant, 1 mile northwest of Robstown, IP 75 bbl. oil per day through a ⅛-in. choke, through perforations at 5,046-54 ft., top pay 5,045 ft.

SOMMER—Nueces, November; Producers Development Co. 1 W. D. Swilling, in Section 25, Benton Pasture subdivision, 1½ miles south of Agua Dulce, top pay 5,896 ft., perforations 5,896-5,904 ft., IP 73 bbl. oil per day through a ⅛-in. choke.

SOUTH HALDEMAN—Jim Wells, May; Magnolia Petroleum Co. 7 Seeligson Unit 4, Lot 75, Section 62, R. P. Haldeman subdivision of Seeligson Ranch, top pay 5,563 ft., Vicksburg (Zone 22), perforations 5,563-72 ft., IP 54 bbl. oil per day through a ⅛-in. choke.

SOUTH HALDEMAN—Jim Wells, June; Sunray Oil Co. 1-C C. T. Hewitt, Section 51, R. P. Haldeman subdivision of Seeligson Ranch, top pay 5,135 ft., Frio (Zone 20-C) perforations 5,150-55 ft., IP 216 bbl. oil per day through 11/64-in. choke.

SOUTH HALDEMAN—Jim Wells, July; Sunray Oil Corp. 1-D C. T. Hewitt, in R. P. Haldeman subdivision of Seeligson Ranch. 4 miles northwest of Premont, top pay 4,195 ft., IP 124 bbl. oil per day through Frio perforations at 4,205-11 ft.

SOUTH KELSEY—Starr, February; Sun Oil Co. 1 Vicenta L. de Pena, in Santa Teresa Grant, top pay 5,533 ft., IP 42 bbl. oil per day through Jackson perforations at 5,545-56 ft.

SQUIRE—Duval, August; Santa Clara Oil Co. & John F. Camp & Sons 3-C Jas. F. Welder Hrs., in M. G. Nunez Survey 4, top Strake sand 3,215 ft., IP 239 bbl. oil per day through perforations at 3,220-27 ft.

SQUIRE—Duval, October; Santa Clara Oil Corp. & John F. Camp & Sons 4-C Jas. F. Welder Hrs., in M. G. Nunez Survey 4, 13 miles northwest of San Diego, top Yegua

sand 3,826 ft., IP 132 bbl. oil per day through perforations at 3,830-38 ft.

STRATTON—Nueces, April; G. E. Sullivan 1 Fee, Section 5, Chas. E. Stratton Subdivision, top pay 5,855 ft., IP 32 bbl. oil per day through Frio perforations at 5,875-87 ft.

TOM GRAHAM (EAST ALICE) — Jim Wells, April; H. J. Mosser & Houston Natural Gas Corp. 5 A. O. Cook, in La Vaca Grant, 3½ miles south of Alice, IP 13,000,000 cu. ft. gas per day on open flow, with condensate flow 40 bbl. per day through 3/16-in. choke, through Frio perforations at 5,627-38 ft.

WEST ALICE—Jim Wells, April; Southern Minerals Corp. 1 S. B. Alley, Lot 23, L. C. Collins farm lots subdivision, Comanche Creek Irrigation Co. Survey, IP 15,250,000 cu. ft. gas per day open flow, through Frio perforations at 3,577-87 ft.

WEST MAGNOLIA CITY—Jim Wells, February; Ralph E. Fair, Inc., & Jack Woodward, Inc., 4-B Reynolds & Richardson, W. N. Staples Survey 210, Lot 24, Chas. Seefeld Farm lots, top pay 4,939 ft., IP 122 bbl. per day through Frio perforations at 4,938-42 ft.

WEST SINTON—San Patricio, August; Arnold O. Morgan Oil Co. 1 H. S. Smith, in Block 22, J. J. Welder & Coleman-Fulton Pasture Co. Subdivision, John Pollam Survey, workover of abandoned hole, IP 45 bbl. net oil per day through ¼-in. choke. Top new sand 1,490 ft., Oakville perforations 1,490-95 ft.

WEST SINTON—San Patricio, April; Jones & Morgan 3 A. Loy Sims, on Block 15, F. J. Welder Subdivision, M. J. de la Garza Grant, top pay 5,130 ft., IP 181 bbl. net oil per day through ¼-in. choke, through Frio perforations at 5,130-42 ft.

WILSON—Jim Wells, July; Magnolia Petroleum Co. 2 N. L. Russell, in Lot 11, Ed. C. Lassiter Subdivision, El Paisano Grant, top pay 7,158 ft., IP 3,632,000 cu. ft. gas per day and 101 bbl. of condensate per day through 11/32-in. choke, through Vicksburg perforations at 7,158-70 ft.

NORTH CENTRAL TEXAS

ACME—Clay, October; S. D. Johnson and Acme Die & Machine Co. 1 Carl Mobley, T. Morehead Survey, A-310, 3 miles northwest Deer Creek, Strawn 4,026-33 ft., IP 193 bbl.

ATCHESON—Cooke, March; Phillips Petroleum Co. 1 L. M. Atcheson, J. Davis Survey, A-331, 10 miles south Muenster, Ellenburger dolomite 2,014-66 ft., IP 81 bbl.

BAILES — Throckmorton, June; J. H. Snowden 1 Bailes, Section 296, BBB&C RR Survey, 4 miles south Throckmorton, Caddo 4,234 ft., IP 935 bbl.

BEAD MOUNTAIN—Coleman, March; Anzac Oil Corp. 1 C. V. Evans, Section 27, Block 1, GH&H Survey, 3 miles southwest Valera, lower Fry sand 2,931-35 ft., IP 169 bbl.

BURNS ABC—Archer, February; L. T. Burns 1 R. O. Andrews, Section 1,806, TE&L Survey, 6 miles southeast Anarene, Caddo 4,454-68 ft., IP 240 bbl.

MAGEE—Montague, May; Continental Oil Co. 1 P. Magee, C. A. Wright Survey, A-1,052, 3 miles southeast Montague, Caddo 6,018-38 ft., IP 160 bbl.

RECORD—Throckmorton, February; Fred M. Manning, Inc., 1 James R. Record, Section 1,609, TE&L Survey, 5 miles northwest Woodson, Mississippi 4,675-83 ft., IP 360 bbl.

ROUNDTOP—Fisher, February; Ellis A. Hall 1 J. D. Terrell, Section 80, Block 1, H&TC Survey, 10 miles west Hamlin, Caddo 4,885 ft., IP 307 bbl.

UNNAMED—Archer, May; R. C. Dublin et al R. Campbell "C," J. Ruddell Survey, 4 miles south Anarene, Gunsight 1,000 ft., IP 180 bbl.

UNNAMED—Archer, July; Tex-Mass Petroleum Co. 2 Olin Calvin, R. Grooms Survey, 2 miles southeast Anarene, Caddo 4,675-85 ft., IP 60 bbl.

UNNAMED—Archer, February; Lloyd Oil Co. 2 Sallry R. Donnell, J. C. Sheldon Survey, 2 miles north Eliasville, sand 2,328-40 ft., IP 96 bbl.

UNNAMED—Archer, April; H. W. Snowden Oil & Gas Co. 1 Andrews, J. B. Hinds Survey, 4 miles southeast Anarene, Caddo 4,526-61 ft., IP 115 bbl.

UNNAMED—Brown, February; Central Texas Gas Co. 1 Frank Madison, S. Ingram Survey 154, 6 miles southeast Bangs, Marble Falls 2,758-85 ft., IP 57 bbl.

UNNAMED—Jack, February; Warren Oil Corp. 1 J. P. Cantrell, Section 2, SPRR Survey, 6 miles south Antelope, Caddo 4,722-46 ft., IP 68 bbl.

UNNAMED—Jack, May; Ashland Oil & Refining Co. 1 Henderson, I. Hughson Survey, ¾ mile southwest Bryson, sand 3,261-75 ft., IP 95 bbl.

UNNAMED—Montague, June; J. M. Garrett 1 Varner Pitman, James Ferguson Survey, 10 miles north St. Jo, sand 1,984-96 ft., IP 40 bbl.

UNNAMED—Shackelford, June; Big West Drilling Co. 1 T. G. Hendrick, Section 8, Block A, AB&M Survey, 18 miles northwest Albany, Ellenburger 5,254-68 ft., IP 156 bbl.

UNNAMED—Stephens, March; Fred M. Manning, Inc., 1 A. W. Mueller, Section 2,258, TE&L Survey, 10 miles southwest Breckenridge, Caddo 3,361-66 ft., IP 151 bbl.

UNNAMED—Stephens, June; Lloyd Oil Co. 1 Eugene Tipton, Nancy Williams Survey, 7 miles south Woodson, Mississippi 5,524-34 ft., IP 208 bbl.

UNNAMED—Throckmorton, April; Mayflower Properties, Inc., 1 J. J. Keeter, Section 3,033 TE&L Survey, 6½ miles northeast Throckmorton, Mississippi 4,813-28 ft., IP 190 bbl.

UNNAMED—Throckmorton, April; Mudge Oil Co. 1 M. K. Graham, Section 2,201, TE&L Survey, 4 miles northeast Woodson, Caddo 3,886 ft., IP 108 bbl.

UNNAMED—Wichita, April; Consolidated Oil Co. 1 Alice Davis, Block 14, DCSL Survey, 7 miles southwest Wichita Falls, Caddo 5,224-34 ft., IP 70 bbl.

UNNAMED—Young, June; Cato Oil Co. 1 G. B. Hamilton, Section 1,393, TE&L Survey, 9 miles northeast Olney, Caddo 4,565 ft., IP 110 bbl.

UNNAMED—Young, January, A. R. Dillard 2 E. C. Stovall, J. M. Johnson Survey, 4 miles southeast Herron City, sand 1,900-08 ft., IP 168 ft.

UNNAMED—Young, September; R. C. Lipscomb 1 W. R. Foster, Section 342, TE&L Survey, 3 miles southeast Padgitt, Mississippi 4,679-91 ft., IP 112 bbl.

UNNAMED—Young, July; Davis Investment Co. 1 C. E. Pool, Section 622, TE&L Survey, 3 miles south Jean, Caddo 3,962-40 ft., IP 110 bbl.

UNNAMED—Young, June; L. T. Burns 1 R. Campbell "C," Section 1,376, TE&L Survey, 5 miles northeast Olney, Caddo 4,464-83 ft., IP 156 bbl.

TEXAS GULF COAST

BAKER — Live Oak County, December; W. Earl Rowe 1 Earl M. Baker et al, in Seale & Morris Survey 7, 4½ miles north-northwest of Clegg, and approximately 1,000 ft. from Live Oak-McMullen County line, 3 miles southeast of Chapa field, IP 4,000,000 cu. ft. gas per day on open flow, through perforations at 2,002-25 ft. Now shut in.

BEACH CREEK, EAST—Hardin County, December; American Republics Corp. 1 C. M. Votaw-fee, in C. M. Votaw (H&TC) Survey, 4½ miles north-northwst of Silsbee field, IP 179 bbl. oil per day through Cockfield perforations at 6,417-19 ft.

BLOOMINGTON—Victoria County, April; Amerada Petroleum Corp. 1 Alexander Unit, Lot 4, Block 1, of Reiss first addition to town of Bloomington, 1 mile northwest of Heyser field, 1½ miles northeast of North McFaddin field, top pay 4,904 ft., perforations 4,904-09 ft. in Heterostegina, IP 155 bbl. oil per day through a 5/32-in. choke.

BRANDT—Goliad County, August; Sunray Oil Corp. 1 George H. Brandt, in Thos. Hancock Survey, 3 miles northeast of Weesache and 1½ miles northwest of Weser field, in north corner of county, IP 140 bbl. oil per day through 5/32-in. choke, from Wilcox (Luling) sand at 7,713-18 ft.

CARONICAN (Sipple)—Live Oak County, May; Henshaw Bros. & E. H. Smith 1 Walter Sipple, in Michael Caronican Survey 35, ½ mile southwest of Kittie field, IP 259,300 cu. ft. gas per day through a ½-in. choke, from Jackson perforations at 1,850-53 ft.

CHRIESMAN — Burleson County, July; Creslenn Oil Co. 1 Nellie K. Gramm, in Eliz. Sante Survey, 12 miles southeast of Rockdale, IP 19 bbl. oil per day on pump through perforations at 3,440-50 ft.

EAST HUMBLE (San Jacinto) — Harris County, May; Houston Oil Co. of Texas 1 Eugene L. Bender Estate, 3 miles off east flank of Humble dome, in J. W. Singleton Survey, IP 1,867,000 cu. ft. gas per day and 58 bbl. of condensate per day through a ¼-in. choke, through perforations at 7,782-90 ft.

EAST McFADDIN—Victoria County, August; Union Producing Co. 7-A A. M. McFaddin, in M. J. Traviesa Grant, IP 92 bbl. oil per day through a ⅛-in. choke through perforations at 5,935-42 ft.

EAST RUNGE — Karnes County, April; Phillips Petroleum Co. (W. E. Kinnear) 1 E. Dittmer, in Brooks and Burleson Survey 1, 3 miles southeast of Runge and 1½ miles east-northeast of Runge field, old well drilled deeper, originally abandoned March 21, 1947. IP 1,027,000 cu. ft. gas per day and 48 bbl. condensate per day through 5/32-in. choke, through Wilcox (Luling) sand perforations at 6,764-69 ft.

EVERGREEN—San Jacinto County, April; Mac Drilling Co. 1 Cynthia Payne, in Vital Flores Survey, 5 miles southwest of Cold Spring production, 4 miles south of Evergreen townsite, IP 76 bbl. oil per day through ¼-in. choke, through Wilcox perforations at 7,682-7,702 ft.

FOESTER — Calhoun County, August; Quintana Petroleum Corp. 1 L. J. Foester, in Y. Benavides Survey, 2 miles northeast of Sheriff field, 3 miles west of Port Lavaca field, IP 4,000,000 cu. ft. gas per day through a ¼-in. choke, with considerable condensate, through Frio perforations at 7,920-41 ft.

GIST — Newton County, September; George R. Brown and Standard Oil Co. of Texas 1 Earl Hankamer, in R. L. White Survey 22, approximately 2 miles east of the Standard of Texas dry hole in Jasper County, IP 96 bbl. of oil per day through 7/64-in. choke, through lower Frio perforations at 5,743-45 ft.

GOBBLER CREEK — Wharton County, April; Grubb & Hawkins 1 Rudolph C. Peters, in Lyman Conkrite Survey, 3 miles west of Lakeview gas production, IP 168 bbl. oil per day through a 10/64-in. choke, through Frio perforations at 4,520-24 ft. Oil sand from 4,519-43 ft.

GREEN LAKE — Calhoun County, June; Ryan Consolidated Petroleum Corp. 1 Theresa H. Wagner, in Manual Lopez Grant, 2 miles east-northeast of Green Lake townsite, IP 33 bbl. oil per day through a ¼-in. choke by heads, through Marginulina perforations at 5,980-6,008 ft.

HALLETTSVILLE—Lavaca County, August; Forest Oil Corp. 1 H. C. Qbelgoner, in James Campbell Survey 2, 2 miles north of Hallettsville, IP 40,000,000 cu. ft. gas per day on open flow, with condensate, through Wilcox perforations at 7,510-16 ft.

HARRIS—Live Oak County, May; Stanolind Oil & Gas Co. 1 Pearl Harris, in Francisco Leal Survey, 2 miles northeast of George West, IP 7,000,000 cu. ft. gas per day on open flow, with some condensate, through Wilcox (Slick sand) perforations at 7,370-80 ft.

HECAR—Refugio County, September; La Gloria Corp. and Skelly Oil Co. 1-B Jamie Hynes, in Isabella O'Brion Survey, 3 miles northwest of Refugio, IP 107 bbl. oil per day through 5/32-in. choke, through Catahoula perforations at 3,517-25 ft.

HEINZEVILLE—Goliad County, August; Dan Auld et al 1 F. W. Heinrich, in Cyrus Donnely Survey, 3 miles northwest of Weesache, IP 3,200,000 cu. ft. gas per day and 108 bbl. per day condensate through a ¼-in. choke, from Wilcox (Slick) 7,556-66 ft.

HOLZMARK AREA — Bee County, January; S. Donzis 1 Holzmark, in J. A. York Survey, 10 miles northwest of Beeville and ¾ mile southwest of Holzmark, IP 3 bbl. oil per day on pump, through Hockley perforations at 3,486-3,524 ft.

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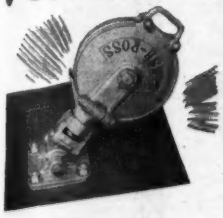

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HORD'S CREEK-WILCOX—Goliad County, April; W. L. Goldstein 1 Jennie Ray Kauffman, 5½ miles southwest of Charco, Block 13, F. P. Zoch Oil and Gas Subd., P. Trevino Survey, IP 245 bbl. condensate per day and 6,600,000 cu. ft. gas (open), through Wilcox (Luling) perforations at 7,900-20 ft.

JAMIE—Victoria County, November; Rowan and Hope 6 Sally Ragsdale, in Valentin Garcia Grant, 1½ miles northeast of East Telferner field and 4½ miles south of Inez. IP 57,000,000 cu. ft. gas per day on open flow, shutin pressure 2,050 psi. through perforations at 5,102-08 ft.

JERGINS—Chambers County, June; Kirby Petroleum Co.-Fee Tract 20, in C. Smith Survey, IP 39 bbl. oil per day through a 3/16-in. and 1,275,000 cu. ft. gas per day, through Frio perforations at 6,312-16 ft.

KITTIE BURNS—Live Oak County, August; Continental Oil Co. 1 Kittie West Burns, in G. L. Haas Survey, 7 miles southwest of George West, 2 miles northeast of Clay West field, IP 2 bbl. condensate and 1,970,000 cu. ft. gas per day through a ⅛-in. choke, from sand perforations at 10,236-48 ft.

LEAGUE CITY HEIGHTS—Galveston County, November; H. L. Hunt 1 S. E. Wilson, in S. F. Austin 3 and Perry & Austin Lower League, 1¾ miles north of League City production, IP 81 bbl. oil per day through a ⅛-in. choke, from sand perforated at 9,654-58 ft.

LIND—Jackson County, January; Blanco Oil Co. and Al Buchanan 1 John Lind, J. Heard Survey, 1 mile southeast of Stewart field and 1 mile southwest of Ganado field, 5 miles south of Ganado, IP 45 bbl. per day net oil through a 3/32-in. choke, through perforations at 7,059-60 ft.

MAGNOLIA BEACH—Calhoun County, August; Cecil H. McSpadden 1 Mary R. Goggans, in Benito Morales Survey, 7 miles southeast of Port Lavaca, IP 30,000,000 cu. ft. gas per day on open flow, gas-condensate ratio 80,000, from Catahoula perforations at 5,766-70 ft.

MANVEL SE FLANK—Brazoria County. May; Progress Petroleum Co., Inc. 1 O. L. Rash et al, in Thos. Spraggins Survey, IP 133 bbl. oil per day through ⅛-in. choke, from oil sand at 4,590-4,604 ft.

MATAGORDA BAY—Calhoun County, February; The Texas Co. et al 1 State of Texas (Amerada Unit), State Tract 106, in Matagorda Bay, 4½ miles north of Port O'Connor, and 3 miles northeast of shoreline, IP 192 bbl. oil per day through 3/16-in. choke, from Miocene perforations at 4,970-78 ft.

MEYERSVILLE—DeWitt County, January; Continental Oil Co. 1 Fred Ruschaupt, 4½ miles south of Meyersville and approximately 1,400 ft. northwest of Victoria County line in Patrick Dowlearn Survey, IP 40 bbl. condensate per day and estimated 2,400,000 cu. ft. gas open flow, from Wilcox (Massive) perforations at 8,576-89 ft.

MINOAK—Bee County, July; Rowan & Hope 1 Rio Oil Corp., in J. R. Carney Survey, 2 miles southwest of Yoward field, 4 miles southwest of Mineral, IP 65 bbl. condensate per day and 3,285,000 cu. ft. gas per day through a ¼-in. choke, from Wilcox (Slick sand) perforations at 7,530-50 ft.

NORTH SALEM—Jackson County, July; The Texas Co. 1 S. G. Drushell et al, in I&GNRR Survey, 6 miles north of Inez, IP 8,000,000 cu. ft. gas per day on open flow, dry gas, from Catahoula perforations at 2,560-65 ft.

NORTH VIDOR—Orange County, February; Hinkle Drilling Co. 1 Miller-Vidor Land Co., in J. M. Swisher Survey 2, 9 miles north and little west of the North Port Neches discovery, IP 2,200,000 cu. ft. gas per day and 42 bbl. condensate per day through a 12/64-in. choke, from Hackberry sand perforations at 7,772-78 ft.

ORANGE (Hackberry)—Orange County, June; Sun Oil Co. 2 Lutcher-Moore Lumber Co., Jas. Dyson League, IP 178 bbl. oil per day through a 10/64-in. choke, from Hackberry sand at 7,590-7,601 ft.

PENA—DeWitt County, November; Sunray Oil Corp. 1 Lazaro Pena, in Antonio Lazo Survey, 1⅝ miles west of Slick-Wilcox field, and 6 miles south of Nordheim, IP 6,200,000 cu. ft. gas per day on open flow, with condensate, from Wilcox sand perforations 7,512-20 ft.

PIETSCH—Fayette County, January; The Standard Oil Co. of Kansas 1 August Pietsch, in J. R. Phillips League, 8 miles north of LaGrange, IP 2,900,000 cu. ft. gas per day through a ¼-in. choke, from Wilcox perforations at 6,521-27 ft.

PRASIFKA—Wharton County, April; Cockburn Oil Corp. 1 Wharton Bank & Trust Co., AB&M Survey 2, Abstract 452, 3 miles south of Lane City townsite, 3½ miles northeast of Withers production, IP 897,000 cu. ft. gas per day through a ¼-in. choke, through Frio perforations at 4,526-36 ft.

REFUGIO-FOX AREA (Hynes Extension)—Refugio County, May; Wil-Tex Oil Corp. 3-A Hynes, 2 miles northeast of Refugio, in Block 17, in Refugio Town Tract, IP 137 bbl. oil per day through ⅛-in. choke, from Frio perforations at 6,336-40 ft. New pool status granted by Railroad Commission.

ROCHE—Refugio County, March; Hewit & Dougherty 1-A Kathleen D. Roche, D. J. Mitchell Survey, 4 miles southwest of Woodsboro, and 3¾ miles northwest of La Rosa field, IP 155 bbl. oil per day through a ⅛-in. choke, from Frio perforations at 6,814-18 ft.

SALEM—Victoria County, March; The Texas Co. 1 George E. Scott et al, in Wm. Minter Surve, 8½ miles northwest of Inez, 8 miles northeast of Telferner field, IP 18,000,000 cu. ft. gas per day on open flow, through Frio perforations at 4,110-20 ft.

SAN DOMINGO—Bee County, September; J. R. Dougherty 1 Minnie A. Nine, in Oscar Farris Survey, 5 miles southwest of Normanna, IP 260,000,000 cu. ft. gas per day on open flow, with condensate through Wilcox (Luling) perforations at 7,790-7,820 ft.

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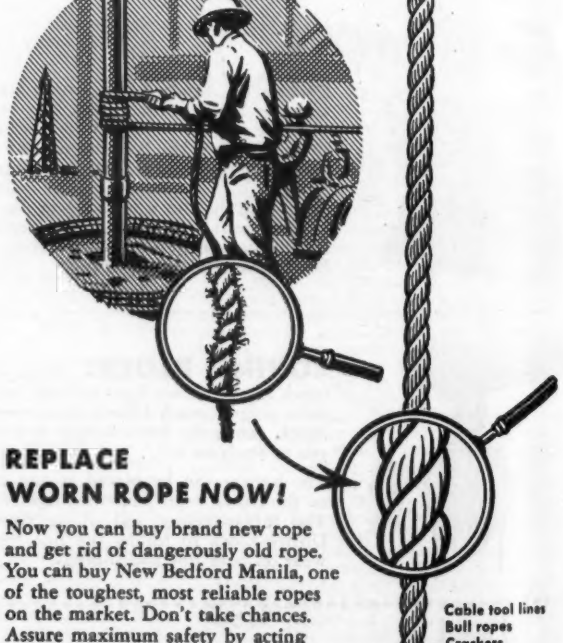

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ty, June; Falcon-Seaboard & Dunwoody 1 Sam F. Bashara, in J. B. Reeves Survey. IP 179 bbl. of oil per day through 14/64-in. choke, from sand perforated at 7,314-38 ft.

SKILLERN—Tyler County, October; Amerada Petroleum Corp. 1 Chas. G. Hooks, in BBB&C Survey, Abstract 113, 6 miles east of Warren townsite, 7 miles northeast of South Hyatt field and 9 miles west of Joe's Lake field, IP 1,360,000 cu. ft. gas per day through 12/64-in. choke, through Upper Cockfield perforations at 4,925-30 ft.

SOUTH CALL—Newton County, April; Sun Oil Co. 1 E. S. White and Sue Ella Mae Smyth West, in Robert Goodwin League, approximately 3 miles northwest of Sabine Tram field, IP 36 bbl. fluid per day through 8/64-in. choke, 37 per cent water,, gas-fluid ratio 10,000, from sand perforations at 10,642-656 ft.

SOUTH LUCKY—Matagorda County, May; Stanolind Oil & Gas Co. 1 Marcus D. Huebner, 2 miles south of Lucky field, Peter Bertrand Survey, IP 79 bbl. of oil per day through ⅛-in. choke, through perforations at 9,236-38 ft.

STAPP—Victoria County, June; Amerada Petroleum Corp. 1 Eliz. Mueller, in Eli Stapp League, 5 miles west of Nursery and 3 miles southeast of Mission Valley, IP 1,634,280 cu. ft. gas per day through ⅛-in. choke, from Catahoula perforations at 2,872-82 ft.

TIDEHAVEN SOUTH—Matagorda County, January; Johnston & Johnston 1 F. Surkamp, in Josiah Tilley League, Blessing area, IP 38 bbl. oil per day through 7/64-in. choke, from sand at 8,530-35 ft.

WEST BERNARD—Wharton County, August; Tide Water Associated Oil Co. 1 J. D. Hudgins, in GH&H Survey, Block 39, 5 miles southeast of nearest production at Lissie and equidistant northeast of Egypt gas production, IP 40 bbl. condensate per day and 2,860,000 cu. ft. gas per day through a ¼-in. choke, from sand at 6,708-23 ft.

WEST COSDEN - MACKHANK (Dirks-Wilcox)—Bee County, April; Dirks Bros. & Tide Water Associated Oil Co. 1-B Page Estate, in J. W. McFarland Survey, on northwest flank of Dirks field, IP 139 bbl. oil per day through 9/64-in. choke, from Wilcox (Mackhank sand) 7,429-35 ft.

WEST ESPERSON—Harris County, March; Atlas Oil & Refining Co. 1 A. B. Cohn Estate, in Meredith Duncan Sur, ¾ mile west of production on Esperson Dome, IP 42 bbl. condensate per day and 1,104,000 cu. ft. gas per day through 8/64-in. choke, through Yegua perforations at 8,687-95 ft.

WEST VIDAURI—Refugio County, November; P. R. Rutherford et al 1 J. F. Welder, in Mrs. Anna Jackson Survey, 7 miles west of Vidauni, 5 miles north-northwest of Greta field, IP 23,500,000 cu. ft. gas per day on open flow, flowed 2,885,000 cu. ft. gas per day through ¼-in. choke, through perforations at 4,869-76 ft. now shut in.

WEST WITHERS—Wharton County, May; Floyd L. Karsten 2 J. C. Carlson, in W. D. Ivey Survey, Section 44, 1 mile west of Withers field oil production, IP 940,000 cu. ft. gas per day through a ½-in. choke, through perforations at 5,514-16 ft.

WURTSBAUGH—Tyler County, August; American Republics Corp. 1 Kirby Lumber Co. et al, in Sara Fields Survey, 5 miles west-southwest of Fred and approximately 3 miles north of North Beach Creek production, IP 58 bbl. oil and 44 bbl. salt water per day through a ½-in. choke, through Wilcox perforations at 9,070-78 ft.

WYRICK—Refugio County, March; The Clymore Co., Inc. 2 John F. Zarsky, Section 46, Johnson & Pugh Subdivision of Bonnie View Ranch, IP 126 bbl. oil per day through a ⅛-in. choke, through Frio perforations at 4,946-48 ft., top pay 4,944 ft.

YOWARD—Bee County, April; Gasoline Production Corp. 1 Harold E. Yoward, in Charles B. Shain Survey, 1¼ miles west of Mineral field and 2 miles south of Mineral, IP 165 bbl. oil per day through a 9/64-in. choke, from Wilcox (Slick sand) perforations at 7,483-93 ft.

UNNAMED—Bee County, March; Tom Slick 1-D Slick Fee, in J. Richardson Survey, Abstract 393, 1 mile northwest of Burnell-Wilcox field, and ½ mile northeast of South Caesar field, IP, gas-condensate, no gage, from Wilcox-Slick sand, perforations at 6,524-25½ ft.

UNNAMED—Brazoria County, February; McCarthy Oil & Gas Corp. 1 Marie B. Nickell, in C. Smith League, 4 miles west from Angelton, 2¼ miles northeast of Bailey's Prairie field discovery, IP estimated 75 bbl. condensate per day, 3,500,000 cu. ft. gas per day through ¼-in. choke, through perforations at 9,100-10 ft.

UNNAMED—Chambers County, February; Gulf Oil Corp. 4 J. E. Jackson, Jno. S. Roberts Survey, Jackson Pasture area, IP gas well, shut in, no gage, from gas sand at 8,083-98 ft.

UNNAMED—Fort Bend County, November; Jack W. Frazier & Grubb & Hawkins 1 J. R. Farmer, in 1&GN Survey, Section A-353, 1½ miles southwest of Clodine field production, IP estimated 100 bbl. condensate per day and 2,942,000 cu. ft. of gas per day through a ¼-in. choke, through sand perforations at 7,415-20 ft.

UNNAMED—Harris County, December; Union Producing Co. 1 Homer J. Moore, in John E. Durkes Survey, 2½ miles southeast of North Houston, IP gas well, no gage, through sand perforations at 7,705-10 ft.

UNNAMED—Liberty County, January; Claud B. Hamill 1 J. C. Stuart, Thos. Devers Survey, IP 159 bbl. oil in 23 hours through a 10/64-in. choke, from Yegua perforations at 5,770-75 ft.

UNNAMED—Live Oak County, April; Continental Oil Co. 1-D Albert W. West in J. Poitevent Survey, 2½ miles southeast of Kittie and 3½ miles northwest of George West, IP 23 bbl. condensate per day, through 5/32-in. choke, 9,600,000 cu. ft. gas per day on open flow, from Wilcox (Slick sand) perforations at 6,780-93 ft.

UNNAMED—Refugio County, January; The Clymore Co., Inc. 1 John L. Zarsky, in La Rosa area in J. M. Aldrete Grant, 1 mile north of La Rosa field, and 3½ miles south of Woodsboro, IP 50,000,000 cu. ft. gas on open flow, on 3/16-in. choke flowed 1,515,000 cu. ft. gas per day from Frio perforations at 4,926-37 ft.

UNNAMED—Refugio County, July; La-Gloria Corp. and Skelly 2 Jamie Hynes, in John Malone Survey, 3 miles north of Refugio, IP 120,000,000 cu. ft. gas per day on open flow, through perforations at 6,019-29 ft.

UNNAMED—Wharton County, August; South El Campo area, Floyd L. Karsten 1 Frank Beal, in ETRR Survey, Section 51, IP 83 bbl. oil per day through 9/64-in. choke, through perforations at 5,561-64 ft.

UNNAMED—Wharton County, August; Jack W. Frazier 1 Fred Swenson, in Jas. Devers Survey, 2 miles southwest of Louise townsite, old abandoned hole reworked, IP 2,660,000 cu. ft. gas per day through a ¼-in. choke, through perforations at 4,803-11 ft.

UNNAMED—Wharton County, January; Gilcrease Oil Co. 6 W. W. Duson, in I&GN Survey, Section 23, 6,200 ft. west of Kubella field production, IP 145 bbl. oil per day through a 10/64-in. choke, through perforations at 4,663-66 ft.

UNNAMED—Wharton County, April; Wirt Franklin Petroleum Corp. 1 E. J. Steves, in J. J. Dillard Survey, 2 miles north of Louise gas production, IP 5 bbl. condensate per day and 2,225,000 cu. ft. gas per day through a 10/64-in. choke, through perforations at 6,354-58 ft.

UNNAMED—Wharton County, May; Floyd L. Karsten 1 C. L. Tucker, Section 24, Mark Weiss Survey, 3½ miles west of Withers field, IP estimated 30,000,000 cu. ft. gas per day open flow, shut in with no gage, perforations at 7,081-86 ft.

UNNAMED—Wharton County, August; Ralph H. Grant and J. P. Petkas 1 M. F. Rooker, in B. B. Pearce Survey, 4 miles northeast of Gobbler Creek discovery, IP 76,000,000 cu. ft. gas per day open flow, with condensate, through perforations at 4,049-55 ft.

EXTENSIONS

HIGH ISLAND—Galveston County, October; John W. Mecom 8-A E. Ker Cade et al, in I. Lowrie Survey, 2,500 ft. northwest of production at High Island Dome, IP 87 bbl. oil per day through a 12/64-in. choke, perforations 7,140-46 ft., top pay 7,125 ft.

KITTIE—Live Oak County, June; Henshaw Bros. and E. H. Smith 1 Walter Sippel, ½ mile southwest extension, in Michael Caronican Survey 35, IP gas well, no gage, shut in, perforations 1,850-53 ft.

YOWARD—Bee County, August; Mills Bennett and Anderson Prichard 1 W. Sherwood, in H. Coley Survey, 1 mile northwest of Mineral field and 1 mile north-northeast of Yoward field discovery, IP 44 bbl. oil per day through ¼-in. choke, from Slick sand perforations at 7,507-10 ft. Top sand 7,485 ft.

WOODSBORO—Refugio County, November; Southern Minerals Corp. 2-A R. H. Wood, in Anastacio Reojas Grant, 1½ miles west of Woodsboro field, IP 33,500,000 cu. ft. gas per day on open flow, with condensate, shut in, top pay 5,936 ft., perforations 5,936-46 ft.

NEW PAYS

BATSON—Hardin, November; Hawkins & Graham, Inc., 1 Charles G. Hooks et al, in F. H. Green Survey, Lot 5, IP 180 bbl. oil per day through 10/64-in. choke, top sand 5,392 ft., Cockfield-Yegua sand perforations 5,400-10 ft.

BLOOMINGTON—Victoria, June; Amerada Petroleum Corp. 1 Stubblefield Unit, Lot 6, Block 4, Crum Addition, Bloomington townsite, in Francisco Perez Grant, IP 124 bbl. oil per day through 9/64-in. choke, top pay 4,660 ft., Discorbis perforations 4,660-70 ft.

BOLING—Wharton, April; Cecil Hagen 1 A. C. Mick, in S. F. Austin Survey, IP 164 bbl. oil per day through 10/64-in. choke, top sand 4,908 ft., Frio, perforations 5,062-66 ft.

BONNIE VIEW—Refugio, May; P. R. Rutherford 12 Henry Schirmer, Section 26, Johnson & Pugh Subdivision, in Esteban Lopez Grant, IP 140 bbl. oil per day through X-32 choke, (⅛ in. plus), top pay 6,178 ft., Frio perforations 6,178-84 ft.

BONNIE VIEW—Refugio, August; United Prod. Co., Inc., 9 Emil Niemann, Section 26, Johnson & Pugh Subdivision of Bonnie View Ranch, IP 128 bbl. oil per day through ⅛-in. choke, top pay 5,353 ft., Frio perforations 5,399-5,403 ft.

BONNIE VIEW—Refugio, October; P. H. Rutherford 14 Henry Schirmer, Section 26, Johnson & Pugh Subdivision of Bonnie View Ranch, Esteban Lopez Grant, IP 50,000,000 cu. ft. gas per day on open flow, plus condensate. Flowed 2,965,000 cu. ft. gas per day and 54 bbl. condensate through a ¼-in. choke, top pay 5,632 ft., Frio perforations 5,632-36 ft.

BURNELL - WILCOX—Karnes, March, Stanolind Oil & Gas Co. 1 E. P. Ruhman, Sr., James Johnson Survey, IP 152 bbl. oil per day through 9/64-in. choke, top pay 6,966 ft., Massive Wilcox perforations 6,966-70 ft.

CARONICAN (Sipple)—Live Oak; June; Henshaw Bros. & E. H. Smith 2 Walter Sipple, Block 63, Kittie Subdivision, in Michael Caronican Survey 35, IP 775,000 cu. ft. gas per day through ¼-in. choke, through Catahoula perforations at 1,281-86 ft.

CLAY WEST—Live Oak, February; Continental Oil Co. 1-A Mrs. Clay West Burns, in Wesley Sellman Survey, 9 miles southwest of George West, IP 78 bbl. condensate per day through a 13/64-in. choke, top pay 9,390 ft., Wilcox (Luling) perforations 9,390-0,404 ft.

COLUMBUS—Colorado, December; Pan American Production Co. 1 Ola Buescher in Jas. Cummins Survey, IP 68 bbl. oil per day through 8/64-in. choke, through perforations at 8,375-85 ft.

COLETTO CREEK—Victoria, December; Jergins Oil Co. 1 Katie Willemin, in Pedro Gallardo Grant, IP 107 bbl. oil per day through a ½-in. choke, through perforations at 4,320-21 ft.

EAST HUMBLE (San Jacinto)—Harris, June; Houston Oil Co. of Texas 1 A. J. Elkins, in John Iiams Survey, 3½ miles off east coast of Humble dome, IP 53 bbl. condensate per day and 1,933,000 cu. ft.

gas per day through a 12/64-in. choke, through perforations at 8,334-42 ft.

EL CAMPO—Wharton, August; Seaboard Oil Co. of Delaware 1-B R. Holub, in W. D. Ivey Survey, IP 15 bbl. condensate per day and 3,232,000 cu. ft. gas per day through a ¼-in. choke, through perforations at 6,093-6,100 ft.

ENGLEHART—Colorado, August; Shell Oil Co., Inc., et al 1 J. H. Hudson, in S. Kennelly Survey, IP 80 bbl. condensate per day and 2,177,000 cu. ft. gas per day through a ¼-in. choke, top of sand 8,882 ft., perforations 8,882-90 ft., 8,928-34 ft., and 8,948-87 ft.

ESPERSON—Harris, March; Eli Marks 1 A. B. Cohn Estate, in Meredith Duncan Survey, ¾ mile west of production at Esperson dome, IP flowed gas and condensate, no gage, through perforations at 8,687-95 ft.

GLENDALE—Trinity, September; Magnolia Petroleum Co. 3 Bolton, in H. Bond League, IP 8 bbl. condensate per day and 1,173,000 cu. ft. gas per day. Top of Woodbine sand 9,932 ft., perforations 9,932-42 ft., and 9,960-90 ft.

GREEN—Karnes, January; Van Norman Oil Co. 1 O. A. Mudd, in Carlos Martinez Grant, 3 miles north of Burnell, IP 111 bbl. oil per day through 5/32-in. choke, from Wilcox (Slick) sand, topped at 6,442 ft., and perforations at 6,464-66 ft.

HAMPTON—Hardin, June; American Republics Corp. 3 Alexander Hampton, in A. Hampton League, IP 97 bbl. oil per day and 65 bbl. salt water per day through a 5/32-in. choke, top sand 7,312 ft., perforations 7,312-15 ft.

HANKAMER—Liberty, April; Gulf Oil Corp. 29 E. W. Boyt, in Amos Allen Survey, Abstract 562, IP 164 bbl. oil per day through ⅛-in. choke, through perforations at 7,110-22 ft., top of pay 7,110 ft.

HARMON (Ganado)—Jackson, July; W. P. Taylor & Jos. Hornberger, Jr., 1 A. A. Egg, in G. F. & M. T. Simons Survey 24, IP 198 bbl. oil per day through 5/32-in. choke, top pay 6,514 ft., Frio perforations 6,512-18 ft.

HEYSER—Victoria, May; Barnsdall Oil Co. 8 W. H. Bennett, in J. S. Galban Survey, IP flowed gas and condensate through ⅛-in. choke, no gage, through Vicksburg perforations at 7,481-93 ft., top pay 7,480 ft.

HIGH ISLAND—Galveston, January; J. W. Mecom 6-A E. Ker Cade et al, in W. M. Hudson Survey, IP 371 bbl. per day through 3/16-in. choke, from sand perforated 7,141-59 ft.

HOCKLEY—Harris, November; Magnolia Petroleum Co. 6 Warren Ranch, HT&B Survey 1, IP 264 bbl. oil per day through 3/16-in. from sand 3,577-3,640 ft., open hole.

HUFF—Refugio, February; P. R. Rutherford et al R. H. Morrow in Edward Perry Survey, IP 18 million cubic feet gas per day on open flow, dry, gas, from Frio perforations at 4,450-64 ft.

HUMBLE—Harris, February; Humble Oil & Refining Co. 2 H. C. House, in Mary Owens Survey, on north flank of Humble field, IP 163 bbl. of oil per day through a ¼-in. choke, through Miocene perforations at 4,678-88 ft., top pay 4,678 ft.

JERGINS—Chambers, October; Kirby Petroleum Co. 2 Kirby Petroleum Co., Fee Tract 20, in C. Smith Survey, Abstract 22, 933 ft. east of 1 discovery gas-condensate well, IP 149 bbl. oil per day through ⅛-in. choke, from Frio perforations at 6,401-07 ft.

KITTIE WEST—Live Oak, August; Continental Oil Co. 1-A Kittie West Schreiner, in J. Poitevent Survey, IP 26 bbl. condensate per day and 1,646,000 cu. ft. gas per day through 5/32-in. choke, from Wilcox (Luling) sand perforated at 6,878-85 ft.

LA ROSA—Refugio, August; Stanolind Oil & Gas Co. 37 B. D. Rooke, in J. M. Aldrete Grant, IP 187 bbl. oil per day through ⅛-in. choke, through Frio perforations at 6,843-48 ft., top pay 6,844 ft.

LA SALLE—Jackson, August; Sterling Oil & Refining Co. 1-Y J. M. Bennett, in Ramon Musquez Grant, IP 65 bbl. per day condensate, through a ¼-in. choke, through Frio perforations at 6,298-6,314 ft.

LOLITA—Jackson, July; Humble Oil & Refining Co. 1-D Four Way Ranch, in I&GN Survey 11, ⅛ mile northeast of previous production, IP 88 bbl. oil per day through ⅛-in. choke, Vicksburg perforations at 7,865-71 ft. Top pay 7,865 ft.

LOUISE—Wharton, April; Wirt Franklin Petroleum Co. 1 Martha Brown, Morris & Cummings Survey, 2 miles south of Louise, IP 5 bbl. condensate per day and 2,250,000 cu. ft. gas through a ¼-in. choke, from sand perforations at 6,320-24 ft., top sand 6,320 ft.

MATAGORDA BAY—Calhoun, June; The Texas Co. 1 State of Texas (Tract 118), in Matagorda Bay, 4½ miles north of Port O'Connor in Tract 118, IP 40,000,000 cu. ft. dry gas per day open flow, top pay 4,716 ft., Miocene perforations 4,716-22 ft.

MATAGORDA BAY—Calhoun, July; The Texas Co. 1 State Tract 130, in State of Texas Tract 130 in Matagorda Bay, 5½ miles north-northeast of Port O'Connor, IP 17,500,000 cu. ft. gas per day on open flow, through Miocene perforations at 4,622-30 ft.

MATAGORDA BAY—Calhoun, December; Stanolind Oil & Gas Co. 1 State of Texas Tract 104, in Matagorda Bay, 5½ miles north of Port O'Connor and 1½ miles north-northwest of discovery well at Matagorda Bay field, IP 2,670,000 cu. ft. gas per day through a ¼-in. choke, through perforations at 5,044-49 ft., top pay 5,031 ft.

NADA—Colorado, February; Ohil Oil Co. 1-A Nada Unit, in Indianola R.R. Co. & J. D. Schulze Survey, 5 miles southwest of Nada townsite, IP 25 bbl. condensate per day and 1,953,000 cu. ft. gas per day, top of sand 9,910 ft., perforations 9,910-16 ft.

NADA—Colorado, September; Ohio Oil Co. 1-B Nada Unit, W. S. Delaney Survey 4, IP 87 bbl. condensate per day and 1,936,000 cu. ft. gas per day through a ¼-in. choke, top of sand 6,216 ft., perforations at 6,216-20 ft.

NORTH CHEEK—Jefferson, June; Floyd L. Karsten 6 J. H. Phelan, in Samuel Stivers Survey, IP 4,030,000 cu. ft. gas per day and 90 bbl. condensate per day through a ¼-in. choke, through perforations at 8,180-90 ft.

NORTH LA ROSA—Refugio, August; Phillips Petroleum Co. 1 S. Bill, in Johnson & Pugh Subdivision of Bonnie View Ranch, reworked, original completion gas-condensate well through Frio perforations 6,156-72 ft. went to salt water. Top new sand 5,633 ft., perforations 5,633-42 ft., IP 1,616,000 cu. ft. gas per day and 75 bbl. condensate per day, through 3/16-in. choke, no water.

NORTH LOUISE—Wharton, February; Ralph A. Johnston 1 S. G. Shrader, in J. A. Hamilton Survey, (workover), IP 2,464,000 cu. ft. gas per day through ¼-in. choke, top sand 4,437-49 ft.

NORTH VIDOR—Orange, May; Gulf Oil Corp. 1 Miller-Vidor Land Co., et al, in J. M. Swisher Survey 1, IP flowed dry gas and shut in with no gage made, top sand 6,932 ft., perforations 6,932-34 ft.

NORTH VIDOR—Orange, July; Gulf Oil Corp. 1 Miller-Vidor Land Co., et al, in J. M. Swisher Survey 1, IP 99 bbl. condensate per day and 5,050,000 cu. ft. gas through ¼-in. choke, perforations 6,932-39 ft., top sand 6,932 ft.

PICKETT RIDGE—Wharton, July; Adrian Moore et al 2 Wilbeck, in J. Telferner Survey, IP 139 bbl. oil per day through a ¼-in. choke, perforations 4,611-16 ft., top sand 4,611 ft.

PIERCE JUNCTION—Harris, November; McCarthy Oil & Gas Corp. & Gulf Oil Corp., 1 R. C. Mowery, in Jas. Hamilton Survey 53, off south flank of Pierce Junction dome, IP 92 bbl. oil per day through 11/64-in. choke, through sand perforations at 7,564-70 ft.

PRASIFKA—Wharton, May; H. C. Cockburn 1 Josephine Blauvelt, S. Castleman Survey, IP 2,500,000 cu. ft. gas per day through ¼-in. choke, sand perforated 4,204-14 ft.

PROVIDENT CITY—Lavaca, February; Shell Oil Co., Inc., 2 E. T. Neuhaus, in John W. Wynemaker Survey, 1½ miles northwest of Provident City field discovery well, IP 132 bbl. oil per day through ⅛-in. choke, from Cockfield sand perforated at 5,403-12 ft.

SARATOGA—Hardin, July; Sun Oil Co. 3 John McShane, Hardin County School Land Survey 260, IP 141 bbl. oil per day through 10/64-in. choke, perforations 4,042-54 ft.

SARCO CREEK—Goliad, June; Ginther, Warren & Ginther 1-B Carrie Wood, in John Shearn Subdivision, rework of old Rowan 1-B Wood, first completion as oil producer from open hole 5,008-48 ft., in Vicksburgh, later recompleted as gas well through perforations at 4,125-50 ft., and new completion in pay topped at 2,870 ft., IP 11,500,000 cu. ft. gas per day (dry gas) on open flow, through Catahoula perforations at 2,870-80 ft.

SCOBY LAKE—Brazoria, May; McCarthy Oil & Gas Corp. 1 T. A. Munson, in C. Smith League, 1½ miles south of Blue Lake production on east side, IP 4,620,000 cu. ft. gas per day and 44 bbl. condensate per day, through perforations 10,488-504 ft.

SOUTH BLANCONIA—Bee, September; Bridwell Oil Co. 1 H. C. Wood, in J. M. Castillo Survey, rework job, originally completed through perforations at 5,269-74 ft., squeezed and reperforated in upper sand, topped at 4,360 ft., IP 57,000,000 cu. ft. gas per day on open flow, Frio perforations 4,360-65 ft.

SOUTH HUTCHINS—Wharton, July; McDannald Oil Co. 2 K. C. Martin, in I&GN Survey, IP 45 bbl. oil per day through 6/64-in. choke, from sand perforated at 5,735-37 ft.

SOUTH HUTCHINS—Wharton, July; Perry R. Bass et al 5 Lacy W. Armour et al, in I&GN Survey, IP 26 bbl. oil per day through 16/64-in. choke and 3,200,000 cu. ft. gas per day, through perforations in sand at 5,852-55 ft.

SOUTH HUTCHINS—Wharton, October; McDannald Oil Co. 6 K. C. Martin, in I&GN Survey, IP 192 bbl. oil per day through a ⅛-in. choke, through Frio perforations at 5,896-98 ft.

SOUTH LIBERTY—Liberty, November; L. M. Josey et al 2 Joseph Mitchell Est., in 400-acre Mitchell tract, northeast flank of field, IP 101 bbl. oil per day through 3/16-in. choke, from Yegua sand perforated at 5,892-5,902 ft.

STRATTON RIDGE—Brazoria, March; E. Cockrell 5 Seaburn Estate Heirs, in Jared E. Groce 5 League Grant, old well drilled deeper, IP 130 bbl. oil per day through 9/64-in. choke, from open hole in sand from 4,965-86 ft.

SUBLIME—Colorado, March; Tide Water Associated Oil Co. 1 Guy F. Stovall, in M. Muldroon Survey 30, IP flowed gas and shut in, no gage, perforations 8,034-39 ft.

SUGAR VALLEY—Matagorda, August; Humble Oil & Refining Co. 1 Truitt & Gravier et al, in Freeman George Survey, 1 mile southeast of production, IP 199 bbl. oil per day through ¼-in. choke, through Frio perforations at 9,970-75 ft.

TEXANA—Jackson, October; Floyd L. Karsten 1 Geo. S. Clement et al, southeast flank of field, redrill job in old Moore & Ahern & Cron & Gracey 1 Clement dry hole, IP 3,840,000 cu. ft. gas per day and 20 bbl. per day condensate through a¼-in. choke, from Frio perforations at 6,300-05 ft.

WEST BERNARD—Wharton, October; Tide Water Associated Oil Co. 1 C. B. Stephens, in J. M. Rose Heirs Survey, 6 miles southeast of Lissie townsite, IP 3,380,000 cu. ft. gas per day through a 12/64-in choke, and 8 bbl. condensate per day per million cubic feet of gas, through sand perforations at 7,680-98 ft.

WEST COLUMBIA—Brazoria, June; The Texas Co. 27 J. G. Phillips et al in Geo. Tennille League, IP 766 bbl. oil per day through a ¼-in. choke, through perforations at 6,633-40 ft.

WEST ORANGE—Orange, August; G. E. Glasco 1 Lutcher & Moore, in Wm. Dyson Survey, workover, IP 246 bbl. oil per day through 3/16-in. from Miocene perforations at 3,475-85 ft.

WEST PRIDHAM LAKE—Victoria, March; Fidelity Oil & Royalty Co. 1 Edward Dietzel, in R. Manchola Grant, IP 83 bbl. oil per day through 5/32-in. choke, through Catahoula perforations at 2,959-61 ft.

WYRICK—Refugio, April; The Clymore Co., Inc., 3 John L. Zarsky, Section 46.

Johnson & Pugh Subdivision of Bonnie Viey Ranch, in J. M. Aldrete Grant, 4 miles south of Woodsboro, IP 82,000,000 cu. ft. of gas per day on open flow, through Frio perforations at 5,836-40 ft.

YOAKUM—Lavaca, August; Pure Oil Co. 1 J. D. Turner Unit, in James May Survey, IP 25 bbl. condensate per day and 1,882,000 cu. ft. gas per day through 5/32-in. choke, from Wilcox perforations at 8,635-75 ft.

UNNAMED—Wharton, November; Floyd L. Karsten 1-A F. J. Danielson, in ETRR Survey, 5¾ miles southeast of El Campo townsite, IP 3,133,000 cu. ft. gas per day through a ¼-in. choke, from sand perforations at 6,724-28 ft.

SOUTH LOUISIANA

BLOCK 32—Terrebonne Parish, November; Kerr-McGee Oil Ind., Inc. 1 State, Block 32, Lease 754, 12 miles south of Point Au Fer production, that distance out in the Gulf of Mexico, IP 600 bbl. oil per day through a 32/64-in. choke, through Miocene perforations at 1,734-50 ft. This is the first offshore oil producer in the open waters of the Gulf of Mexico.

BIVENS—Beauregard Parish, May; Atlantic Refining Co. 1 Newport Industries, Inc., 11-5s-12w, 2 miles northwest of West Pine Grove discovery, IP 113 bbl. oil per day through 6/64-in. choke, Cockfield Yegua sand 7,256-92 ft., perforations at 7,272-78 ft.

EAST BANCROFT—Beauregard Parish, October; Vincent & Welch 1 Vincent & Welch-Houston Oil Co., 14-6s-13w, 1½ miles east of Bancroft production, IP 58 bbl. condensate per day through 7/64-in. choke, through Cockfield perforations at 7,899-7,904 ft.

EAST PERKINS — Beauregard Parish, August; The Union Sulphur Co., Inc., 1 W. E. McFatter, 34-7s-10w, 3 miles east of Perkins field in Calcasieu Parish, IP 130 bbl. oil per day through a 7/64-in. choke, through lower Marginulina sand perforations at 6,498-6,506 ft.

FOUR ISLE DOME—Terrebonne Parish, April;. The Superior Oil Co. 1 LLE-State Unit 12 (was 3 LLE, rediscovery well, worked over for oil and gas production)—34-21s-16e, IP 8 bbl. oil per day and 703,000 cu. ft. gas per day through a ¼-in. choke, gravity 44.6°, through sand perforations at 8,978-94 ft. and 8,937-71 ft.

GRAND CHENIER — Cameron Parish, March; Sohio Petroleum Co. 1 Charles Richard, Center SW SW 1-15s-5w, 9 miles southwest of Pecan Lake field and 8 miles southeast of Little Chenier gas field, IP flowed gas and spray of condensate through 10/64-in. choke, shut in, no gage, through Miocene perforations at 8,380-90 ft.

HOLMWOOD — Calcasieu Parish, February; Sohio Petroleum Co. 2 Farmers Land & Canal Co., 26-10s-7w, 1½ miles north of Holmwood townsite, and 5 miles southwest of Bon Air field, IP 292 bbl. per day through a 5/32-in. choke, from lower Frio (Hackberry) sand at 10,350-370 ft.

JOHNSONS BAYOU AREA — Cameron Parish, July; Stanolind Oil & Gas Co., 1 George J. McManus, 20-15s-14, 9 miles southwest of Cameron Meadow field, approximately ½ mile north of Gulf of Mexico shore line, IP 3,200,000 cu. ft. gas per day through ¼-in. choke, through perforations at 4,480-88 ft.

KAPLAN — Vermilion Parish, January; Humble Oil & Refining Co. 1 Alfred Ray Romaine et al, 25-12s-1e, IP 62 bbl. oil per day through a ¼-in. choke, through Oligocene perforations at 11,066-080 ft.

MOSS LAKE—Calcasieu Parish, August; Sun Oil Co. 1 Louisiana Farm & Livestock Co., 7-11s-9w, 2 miles west of East Moss Lake gas production, IP 136 bbl. oil per day through an 8/64-in. choke through Marginulina sand perforations at 8,844-48 ft.

MUD LAKE, NE—Cameron Parish, March; Magnolia Petroleum Co. 1-C Lutcher, 24-14s-11w, 4 miles northeast of Mud Lake gas-condensate production, 1½ miles southwest of shore line of Calcasieu Lake, IP 47 bbl. condensate per day and 3,716,000 cu. ft. gas per day through a 12/64-in. choke, through Miocene perforations at 10,762-832 ft.

NAPOLEONVILLE, SOUTH FLANK—Assumption Parish, June; Crosby Drilling Corp. 1 Clifton Land Corp. et al, 45-12s-13e, IP 5 bbl. condensate per day through 16/64-in. choke, gas-condensate ratio 33,200 and flowed 2,500,000 cu. ft. gas per day, through sand perforations at 5,368-72 ft.

QUEEN BESS ISLAND—Jefferson Parish, August; The Texas Co. 1 Lafourche Basin Levee District, 30-20s-25e, the world's deepest producer, IP 49 bbl. condensate per day and 6,188,296 cu. ft. gas per day through ¼-in. choke, through Miocene perforations in sand at 13,879-13,904 ft.

RABBIT ISLAND AREA—Iberia Parish, July; Texas Co. 10 State-Rabbit Island, Lease 340, in Atchafalaya Bay, 4 miles west of Bayou Sale field, IP 5,535,000 cu. ft. gas per day through a ¼-in. choke, through Miocene perforations at 10,545-568 ft. Shut-in gas well.

SAVOY (Swords Area)—St. Landry Parish, January; Stanolind Oil & Gas Co. 1 Ezeb Guillory, 29-6s-2e, 3 miles southwest of Swords townsite, IP 97 bbl. per day through a 10/64-in. choke, through Oligocene perforations at 8,950-65 ft.

SCOTT-DUSON—Lafayette Parish, June; Sohio Petroleum Co. and Union Sulphur Co., Inc. 1 Harson Unit "A," 5-10s-3w, 11 miles east and little north of Crowley field of Acadia Parish, IP 18 bbl. condensate per day and 1,750,000 cu. ft. gas per day through a 10/64-in. choke through Miocene perforations at 10,840-856 ft.

SOUTH BARATARIA — Jefferson Parish; The California Co. 9 E. P. Brady et al, Unit 1, 2-16s-23e, IP 168 bbl. condensate per day and 5,708,000 cu. ft. gas per day through a ¼-in. choke, Miocene perforations at 11,821-86 ft. This well shut in.

SOUTHWEST EOLA—Avoyelles Parish. July; Atlantic Refining Co. 1 Haas Investment Co., Inc., 10-2s-2e, 1½ miles west of most southerly production in Eola field, IP 186 bbl. oil per day through a 10/64-in. choke, through Wilcox perforations at 8,562-72 ft.

TIGRE LAGOON—Iberia Parish, May; Union Oil Co. of California 1 P. O. Landry, 29-13s-5e, 3¼ miles west of Avery Island production, IP estimated flow of 1,500,000 cu. ft. gas per day through ½-in. choke, and shut in, through Miocene perforations at 11,480-500 ft.

WARREN—Vermilion Parish, November; Stanolind Oil & Gas Co. 1 E. M. Watkins, 23-13s-1w, 6 miles east of Florence townsite, IP 114 bbl. oil per day through a 6/64-in. choke, through sand perforations at 7,070-73 ft.

UNNAMED—Jefferson Davis Parish, March; Stanolind Oil & Gas Co. et al 1 T. S. Stegal, 21-9s-5w, on northwest flank of Welsh Dome, IP 28 bbl. oil per day and 2,080,000 cu. ft. gas through 12/64-in. choke, through sand perforations at 6,843-55 ft.

NEW PAYS

ALLIANCE—Plaquemines Parish, March; The California Co. 1 Louisiana Citrus Lands, Inc., 16-16s-24e, IP no gage, shut in, condensate, gravity 58°, through Miocene perforations at 9,346-70 ft.

ALLIANCE—Plaquemines Parish, May; The California Co. 9 E. P. Brady, Lease 4, 19-16s-24e, IP 89 bbl. oil per day through a 6/64-in. choke, through Miocene perforations at 9,252-57 ft.

AVERY ISLAND—Iberia Parish; Humble Oil & Refining So. 13-B Petit Anse Co., 23-13s-5e, IP 324 bbl. oil per day through ½-in. choke, through perforations at 10,310-360 ft.

BARATARIA—Jefferson Parish, February; The California Co. 1 Rathborne Land Co., 2-16s-23e, IP 250 bbl. per day through a 9/64-in. choke, through perforations at 8,930-38 ft.

BAYOU CHOUPIQUE—Calcasieu Parish, February; Union Sulphur Co., Inc. 1 J. G. Gray Estate, 17-11s-10w, ¼ mile north of 1 Ellender, discovery well, IP 22 bbl. condensate per day through 8/64-in. choke, and 1,988,000 cu. ft. gas per day, through Marginulina sand stringer perforations at 8,612-16 ft.

BAYOU SALE—St. Mary Parish, May; The Texas Co. 4 State-St. Mary Parish Land Co., Unit 2, State Lease 329, 11-17s-9e, IP 1,630,000 cu. ft. gas and ungaged amount condensate through ½-in. choke, through Miocene perforations at 9,900-50 ft.

BON AIR—Jefferson Davis Parish, March; Sohio Petroleum Co. 4-B Claudius Fontenot, 16-10s-6w, IP 1,155,000 cu. ft. gas and 6 bbl. condensate per day through ½-in. choke, through perforations at 10,380-396 ft.

CAMERON MEADOWS—Cameron Parish, March; Magnolia Petroleum Co. et al 45 Cameron Meadows Land Co., 28-14s-13w, IP 67 bbl. condensate per day, and 689,000 cu. ft. gas per day through 7/64-in. choke, through Miocene perforations at 8,678-88 ft.

CROWLEY—Acadia Parish, October; Phillips Petroleum Co. 2 Onezime, 15-10s-1e, IP 31 bbl. condensate per day and 4,950,000 cu. ft. gas per day through a 12/64-in. choke, through perforations at 11,054-72 ft.

DAVE HAAS—Avoyelles Parish, November; The Atlantic Refining Co. 2 Haas Investment Co., 9-2s-2e, ¼ mile northwest of 1 Haas discovery well, southwest of Eola field, IP 144 bbl. oil per day through ¼-in. choke, through perforations at 8,638 ft.

DELTA DUCK—Plaquemines Parish, March; The Texas Co. 13 Delta Duck Club Unit, State Lease 335, 31-20s-20e, IP 77 bbl. condensate per day through 3/16-in. choke, through Miocene perforations at 8,678-8,714 ft.

DES ALLEMANDS—Lafourche Parish, August; Amerada Petroleum Corp. 13 C. E. Gheens, 37-15s-20e, IP 195 bbl. oil per day through a ⅛-in. choke, through perforations at 8,406-12 ft.

ENGLISH BAYOU—Calcasieu Parish, September; Union Sulphur Co., Inc. 1 Ryan Lyons et al, 11-9s-8w, IP 81 bbl. oil per day through an 8/64-in. choke, through Miocene perforations at 5,590-94 ft.

FOUR ISLE DOME—Terrebonne Parish; October; The Superior Oil Co. 2 State-LLE Unit 12, 24-21s-16e, IP 180 bbl. of condensate per day, through a ¼-in. choke, through perforations at 13,455-475 ft.

HOUMA—Terrebonne Parish, July; Union Oil Co. of California 1 J. C. Dupont, Inc., 45-16s-17e, 1½ miles north of gas-condensate production, IP 130 bbl. condensate per day through 16/64-in. choke and 6,461,000 cu. ft. gas per day, through perforations at 11,930-50 ft.

IOTA—Acadia Parish, November; Crown Central Petroleum Corp. 1 H. T. Duson, 14-8s-2w, ⅜ mile southeast of Iota field, IP 298 bbl. oil per day through 10/64-in. choke, through perforations at 8,814-22 ft.

IOWA—Calcasieu Parish, August; Magnolia Petroleum Co. 20 B. T. Wait, 12-9s-7w, IP 181 bbl. condensate per day through a 10/64-in. choke, through lower Miocene (Hackberry) perforations at 9,476-79 ft. (This is first test to go into salt and deepest test for the field, total depth 10,107 ft.)

LAKE HERMITAGE—Plauqemines Parish, February; Gulf Refining Co. 16 Lafourche Basin Levee District, 11-18s-25e, IP 143 bbl. condensate per day through a 3/16-in. choke, and 3,455,000 cu. ft. gas per day, through perforations at 12,022-36 ft.

LAKE HERMITAGE—Plaquemines Parish, August; Gulf Refining Co. 17 Lafourche Basin Levee District, 10-18s-25e, IP 91 bbl. oil per day and 3,245,000 cu. ft. gas per day through a 3/16-in. choke, through perforations at 11,895-954 ft.

LAUREL RIDGE—Iberville Parish, February; Humble Oil & Refining Co. 1 Hibernia Bank & Trust Co., 68-10s-14e, ¾-mile east extension to production, IP 89 bbl. condensate per day through a ¼-in. choke, and 1,306,200 cu. ft. gas per day, through Oligocene perforations at 10,172-78 ft.

LEEVILLE—Lafourche Parish, May; The Texas Co. 103 LLE-Leeville, 26-21s-22e, IP 227 bbl. oil per day through a ¼-in. choke, through perforations at 10,535-570 ft.

LEEVILLE—Lafourche Parish, May; The Texas Co. 102 LLE-Leeville, 22-21s-22e, IP 252 bbl. oil per day through 10/64-in. choke, through perforations at 8,300-50 ft.

LIRETTE—Terrebonne Parish, May; Union Producing Co. 1 Laterre Co., Inc., 35-19s-19e, extends gas production 5,300 ft. eastward, IP 8 bbl. 50.9°-gravity condensate per day and 217,000 cu. ft. gas per

day through ⅛-in. choke, through perforations at 10,470-480 ft.

LOCKPORT—Calcasieu Parish, February; Magnolia Petroleum Co. 7 Freiberg & Wolf, 9-10s-9w, IP 85 bbl. oil per day through a 9/64-in. choke, through Miocene perforations at 7,490-94 ft.

LOCKPORT—Calcasieu Parish, September; Magnolia Petroleum Co. 2 Farquhar Unit, 8-10s-9w, IP 18 bbl. oil per day through 7/64-in. choke, through Miocene perforations at 8,506-18 ft.

LONGVILLE—Beauregard Parish; March; Barnsdall Oil Co. 2 Long Bell Lumber Co., 1-6s-10w, IP 166 bbl. through 10/64-in. choke through Cockfield perforations at 8,570-86 ft.

MUD LAKE—Cameron Parish, September; Magnolia Petroleum Co. 1 Vincent Estate, 18-14s-10w, IP 39 bbl. condensate per day and 2,791,000 cu. ft. gas per day through a 12/64-in. choke, through Miocene perforations at 9,539-51 ft. and 9,957-10,047 ft.

PLUMB BOB—St. Martin Parish, October; The Texas Co. 6 St. Martin Parish School Board, 16-8s-7e, IP 8 bbl. oil per day through 16/64-in. choke, through Miocene perforations at 4,096-4,118 ft.

RACELAND—Lafourche Parish, November; Kenneth A. Meredith 1 South Coast Corp., 38-15s-23e, IP 200 bbl. oil per day through a ⅛-in. choke, through perforations at 10,010-26 ft.

ST. MARTINVILLE—St. Martin Parish, January; Continental Oil Co. 3-A Continental fee, 57-11s-6e, IP 112 bbl. oil per day through a 7/64-in. choke, through perforations at 4,894-4,902 ft.

ST. MARTINVILLE—St. Martin Parish, March; Continental Oil Co. 4-A fee, 57-11s-6e, IP 68 bbl. oil per day through a 7/64-in. choke, through perforations at 4,686-4,700 ft.

SOUTH JEANERETTE—St. Mary Parish, March; Atlantic Refining Co. 1-B Adeline Sugar Factory, 37-13s-9e, IP 110 bbl. oil per day through 9/64-in. choke, through Miocene perforations at 7,163-68 ft., oil sand 7,145-80 ft.

TIGRE LAGOON—Vermilion Parish, October; Union Oil Co. of California 1 Billeaud-Planters, 32-13s-5e, 3½ miles west of Avery Island field of Iberia Parish, 3,000 ft. southwest of 1 P. C. Landry discovery well, IP 50 bbl. condensate per day and 1,750,000 cu. ft. gas per day through an 11/64-in. choke, through perforations at 11,638-655 ft.

VENICE—Plaquemines Parish, September; Tide Water Associated Oil Co. 36 Buras Levee District, 28-21s-20e, IP 313 bbl. oil per day through 7/64-in. choke, through open hole at 12,552-568 ft., top sand 12,552 ft.

VERMILION BAY—Iberia Parish, October; The Texas Co. 10-B State-Vermilion Bay, Lease 334, in the bay, 15s-5e, IP 1,400,000 cu. ft. gas per day, no gage on condensate flow, through Miocene perforations at 9,820-60 ft.

VINTON—Calcasieu Parish; October; Union Sulphur Co., Inc. 2 Cleon Land & Development Co., 35-10s-12w, IP 33 bbl. oil on pump, through Marginulina (Catahoula) perforations at 6,285-93 ft.

WEEK'S ISLAND—Iberia Parish, February; Shell Oil Co., Inc. 1 Myles Salt Co., 37-14s-6e, IP 446 bbl. per day through a 10/64-in. choke, through perforations at 12,380-395 ft.

WEEK'S ISLAND—Iberia Parish, August; Shell Oil Co., Inc. 1 Week's Island State Unit "A," 13-14s-6e, IP 434 bbl. oil per day through an 11/64-in. choke, through Miocene perforations at 12,911-17 ft., and 12,924-34 ft., top sand 12,911 ft.

WEEK'S ISLAND—Iberia Parish, September; Shell Oil Co., Inc. 2 State-Week's Bay, Lease 743, 14-14s-6e, IP 268 bbl. oil per day through 9/64-in. choke, through perforations at 9,250-60 ft.

WEEK'S ISLAND—Iberia Parish, October; Humble Oil & Refining Co. 3-B J. M. Burguieres Co., Ltd., 44-14s-7e, off southeast side of dome, IP 260 bbl. oil per day through 9/64-in. choke, through Miocene perforations at 11,662-705 ft.

WEST COTE BLANCHE BAY—St. Mary Parish, August; The Texas Co. 27 State-West Cote Blanche Bay, Lease 340, Twp. 15s-6e, IP 33 bbl. condensate per day and 3,240,000 cu. ft. gas per day through ¼-in. choke, through Miocene perforations at 10,916-69 ft. Well now shut in.

WHITE CASTLE—Iberville Parish, October; Shell Oil Co., Inc., 40 A. Wilbert, 8-11s-12e, IP 130 bbl. oil per day through 8/64-in. choke, through perforations at 3,740-50 ft.

NORTH LOUISIANA

D'ARBONNE—Union, October; Pan American Producing Co. 1 Elva Rugg, NE SE 31-20n-1w, Bodcaw 8,386-8,404 ft., IP 93 bbl. distillate.

JONESVILLE—Catahoula, June; Penrod Drilling Co. 1 J. P. Mitchell, NW NW 36-6n-7e, Stringer sand (Tuscaloosa) 9,320-34 ft., IP 7 bbl.

ORA—Union, June; R. T. Sellers 1 Monzingo-Rivers Lumber Co., 23-22n-1w, Nacatoch 3,490 ft., IP 96 bbl.

UNNAMED, Richland, June; C. H. Murphy, Jr., and Sun Oil Co. 1 Federal Land Bank, SE NE 10-17n-9e, sand 3,153-58 ft., IP 1,000,000 cu. ft. gas.

UNNAMED, DeSoto Parish, December; E. C. Laster 1 Witherspoon, SW SE NW 3-14n-14w, Rodesa 5,254-66 ft., IP 10 bbl. distillate.

NEW PAYS

LONGWOOD—Caddo, May; Phillips Petroleum Co. 2 Jodie, 32-19n-16w, Pettit, IP 132 bbl.

ARKANSAS

CYPRESS LAKE—Miller, October; A. E. Stewart 1 Bailey Johnson, NE NE 29-16s-25w, IP 105 bbl., Glen Rose, 3,990-4,000 ft.

MISSISSIPPI

OLDENBURG—Franklin, October; J. C. Hawkins 1 Lehmann, 27-7n-2e, 1 mile west of Oldenburg and 8 miles east of Cranfield field, IP 153 bbl. oil and 51 bbl. salt water (25 per cent), through perforations at 10,550-552 ft. in Lower Tuscaloosa Massive sand.

UNNAMED—Jones, September; Union Sulphur Co. 1 Earline Parker, 31-10n-10w, IP: pumped 10 bbl. oil per day plus 10 per cent basic sediment and salt water, gravity 10°, through perforations at 5,450-55 ft. in City Bank sand.

UNNAMED—Wayne, December; J. W. Hughes and W. E. Sistrunk 1 G. M. & O. R.R. Co., 24-9n-8w, IP 183 bbl. oil per day, 19.5°-gravity, through perforations at 4,966-73 ft., 5,011-18 ft., 5,039-55½ ft., 5,069-83 ft., 5,116-29 ft., and 5,141-51 ft., in Morrison, City Bank and Stanley sands.

UNNAMED—Jones, October; Union Sulphur Co. 1 A. E. Fall Estate, C NW SW NW 8-9n-10w, 2 miles southeast of Sandersville, IP 9 bbl. oil per day through perforations at 5,438-55 ft., in City Bank (Eutaw) sand.

ILLINOIS

AB LAKE—Gallatin, August; Sohio Petroleum Co. 1 Lynch, NE NE NE 32-8s-10e, lower Renault, 2,655 ft., IP 149 bbl., TD 2,790 ft.

BEMAN EAST—Lawrence, March; Steve Zanetis 1 Mahrenholz, NW SE 19-3n-10w, McClosky, 1,882 ft., IP 190 bbl., TD 1,904 ft.

BERRYVILLE—Wabash, June; British-American Oil Producing Co. 1 Higgins, NW NW NW 36-2n-14w, McClosky, 2,901 ft., IP 223 ft., TD 2,903 ft.

BIBLE GROVE NORTH—Effingham, March; Gilliam & Aspin 1 Adams, SW NW SE 10-6n-7e, McClosky, 2,868 ft., IP 102 bbl., 2,878 ft.

BONE GAP SOUTH—Edwards, June; Inland Producers 1 Harms, SE SE NE 19-1s-10e, Cypress, 2,712 ft., IP 498 bbl., TD 3,126 ft.

BURNT PRAIRIE SOUTH—White, September; British-American Oil Producing Co. et al 1 Duckworth, SE NE NW 7-4s-9e, lower O'Hara, 3,417 ft., IP 72 bbl., TD 3,552 ft.

CENTERVILLE NORTH—White, June; F. Heldt 1 Endicott, SW NE 28-3s-10e, Bethel, 2,991 ft., IP 38 bbl., TD 3,322 ft.

CONCORD CENTRAL—White, February; W. O. Allen 1 Ackerman, NE NE SW 4-7s-10e, Aux Vases, 2,900 ft., IP 135 bbl., TD 2,913 ft.

COTTONWOOD—Gallatin, September; National Association Petroleum Co. 1-A J. C. Moye, SE SE NE 33-7s-9e, Tar Springs, 2,314 ft., IP 6 bbl., TD 2,328 ft.

DIVIDE EAST—Jefferson, December; National Association Petroleum Co. 1 D. McElravy, SW SW SE 17-1s-4e, Aux Vases, 2,635 ft., IP 109 bbl., TD 2,647 ft.

EBERLE—Effingham, February; National Association Petroleum Co. 1 Jacobs, SE SW SW 24-6n-6e, McClosky, 2,823 ft., IP 118 bbl., TD 2,866 ft.

ELLIOTSTOWN—Effingham, April; Gulf Oil Corp. 1 J. M. Schultz, SW SW NW 32-7n-7e, Rosiclare, 2,730 ft., IP 62 bbl., TD 2,884, PBTD 2,826 ft.

FAIRFIELD EAST—Wayne, September; Tuley & Carter 1 A. Martin, NW NW NW 4-2s-8e, Aux Vases, 3,178 ft., IP 16 bbl., TD 3,200 ft.

GAYS—Moultrie, December; Illinois Exploration Co. 1 Hardinger, SW SW NE 21-12n-6e, Aux Vases, 1,933 ft., IP 1½ bbl., TD 2,011 ft.

HALF MOON—Wayne, September; Collins Bros. 1 M. Flowers, S½ SE NW 21-1s-9e, McClosky, 3,353 ft., IP 14 bbl., TD 3,403 ft.

HELENA—Lawrence, June; Fox & Fox 1 Bass, SE SE NW 11-2n-13w, Waltersburg, 1,776 ft., IP 12 bbl., TD 1,803 ft.

HERALD EAST—White, May; Joe Reznik 1 Grant, SW SW SE 13-7s-9e, Waltersburg, 2,291 ft., IP 196 bbl., TD 2,300 ft.

HUNT CITY SOUTH—Jasper, September; Robinson & Puckett 1 Dillman, 1,550 ft. from south and 660 ft. from west lines, 18-7n-11e, McClosky, 2,436 ft., IP 10 bbl., TD 2,460 ft.

INCLOSE (Old pool revived)—Edgar, September; Rangleman & Gamble 1-A Kirkham, SW NE SE 14-12n-14w, Pennsylvania, 342 ft., IP 1 bbl., TD 357 ft.

IOLA SOUTH—Clay, June; Robinson & Puckett 1 Colclasure, NE NW NE 11-4n-5e, McClosky, 2,581 ft., IP 80 bbl., TD 2,703 ft.

IUKA—Marion, July; J. H. Gilliam 1 Ebe, NE NE NW 14-2n-4e, McClosky, 2,754 ft., IP 400 bbl., TD 2,886 ft.

KENNER NORTH—Clay, January; National Association Petroleum Co. 1 N. O. Golden, SW NE SW 17-3n-6e, Bethel, 2,758 ft., IP 87 ft., TD 2,772 ft.

KENNER WEST—Clay, February; Phillips Petroleum Co. 1 Spiker, NE SE SW 23-3n-5e, Cypress, 2,585 ft., IP 95 bbl., TD 3,058 ft., PBTD 2,607 ft.

LEXINGTON—Wabash, January; Fleming 1 Berberick, SE SE NW 26-1s-14w, McClosky, 2,966 ft., IP 250 bbl., TD 3,016 ft.

MASSILON SOUTH—Edwards, May; Magnolia Petroleum Co. 1 Wilson, NE NE SW 18-1s-10e, lower O'Hara, 3,391 ft., IP 4 bbl., TD 3,391 ft.

MILETUS—Marion, February; National Association Petroleum Co. 1 Boyle, NW NE NW 21-4n-4e, Aux Vases, 2,199 ft., IP 38 bbl., TD 2,212 ft.

NEWTON WEST—Jasper, January; McCullough Drilling Co. 1 Winterrowd, NE NE NE 10-6n-9e, McClosky, 2,991 ft., IP 8 bbl., TD 3,016 ft.

SHELBYVILLE NEW—Shelby, August; Doran 1 Manning, NE NW SW 14-11n-4e, Aux Vases, 1,866 ft., IP 69 bbl., TD 2,084 ft.

SORENTO NEW (Old pool revived)—Bond, August; Neary 2 Dressor, NE NW 21-6n-4w, Devonian, 1,810 ft., IP 106 bbl., TD 1,836 ft.

STANFORD WEST—Clay, January; National Association Petroleum Co. 1 Oak Hickle, SE NW NE 33-3n-7e, McClosky, 3,031 ft., IP 305 bbl., TD 3,047 ft.

WESTFIELD EAST—Clark, August; Van Tarble 3 Tarble Bros., SE NE SE 2-11n-14w, Pennsylvania, 418 ft., IP 50 bbl., TD 428 ft.

WOBURN SOUTH—Bond, June; Leo Horton 1 Kokorudz, SW SE NE 21-6n-2w, Trenton, 3,151 ft., IP 70 bbl., TD 3,167 ft.

NEW PAYS

BERRYVILLE—Wabash, August; Phillips Petroleum Co. 1 Fite, SE NE NE 35-2n-14w, Rosiclare, IP 150 bbl., TD 3,013 ft.

BIBLE GROVE NORTH—Effingham, May; Superior Oil Co. 1 Kluthe, NE SW SE 10-6n-7e, Cypress, IP 54 bbl., TD 2,887 ft.

BIBLE GROVE NORTH—Effingham, May;

Texas Co. 1 Bloemaker, NE NE SW 10-6n-7e, Rosiclare, 2,835 ft., IP 7 bbl., TD 2,944 ft.

BONE GAP SOUTH—Edwards, July; Calvert & Willis 1 Briggs, NE NW SE 19-1s-14w, Aux Vases, 3,015 ft., IP 125 bbl., TD 3,090 ft.

BROWNS—Wabash, May; Potter et al 1 De Bell, SW SW NW 34-1s-14w, Rosiclare & McClosky, IP 225 bbl., TD 3,010 ft.

BROWNS—Wabash, December; Tar Springs, 2,365 ft.

BROWNS SOUTH—Edwards, September; J. J. Lynn & Calvert & Willis 1 Messman, NW NW SW 9-2s-14w, Aux Vases, IP 11 bbl., TD 3,075 ft.

CONCORD CENTRAL—White, March; Great Lakes Carbon Co. 1 Calvert, SE NE NW 4-7s-10e, Aux Vases & McClosky, Aux Vases —2,899 ft., McClosky —2,970 ft., IP 9 bbl., TD 3,053 ft., PBTD 2,985 ft.

COWLING—Edwards, January; George H. Wickham 1 Broster, NW SE NE 34-2s-14w, Palestine, 2,001 ft., IP 248 bbl., TD 2,016 ft.

DUBOIS—Washington, September; W. O. Allen 1 J. L. Kasban, NW SW SW 18-3s-1w, Cypress 1,185 ft., IP 5,200 M.c.f., TD 1,336 ft.

EBERLE—Effingham, November; National Association Petroleum Co. 2 Jacobs, SE NE SW 24-6n-6e, Cypress, 2,473 ft., IP 32 bbl., TD 2,483 ft.

ELLERY SOUTH—Edwards, December; Aux Vases, 3,210 ft.

EPWORTH EAST—White, May; W. O. Allen 1 Brimble-Combe, SE 28-5s-10e, Tar Springs, 2,359 ft., IP 500 bbl., TD 3,127 ft.

EWING—Franklin, January; Sohio Petroleum Co. 1 Bosserman, NE SE SE 5-5s-3e, Aux Vases, 2,830 ft., IP 117 bbl., TD 2,841 ft.

GEFF WEST—Wayne, September; A. J. Slagter, Jr., 1 Evans, SW SE SE 4-1s-7e, Rosiclare, 3,202 ft., IP 25 bbl., TD 3,205 ft.

GEFF WEST—Wayne, October; A. J. Slagter, Jr., 1 Barnard, SW NE SE 4-1s-7e, McClosky, IP 77 bbl., TD 3,214 ft.

GRAYVILLE—White, January; S. S. Yingling 1 Sanders, SW SE 20-3s-14w, Waltersburg, 2,302 ft., IP 153 ft., TD 2,772 ft.

HERALD—White, December; Degonia, 1,920 ft.

HERALD EAST—White, October; C. E. Skiles 1 Williams, SE SW NW 13-7s-9e, Tar Springs, 2,397 ft., IP 20 bbl., TD 2,414 ft.

HERALD EAST—Gallatin, July; Joe Reznik 1 Glover, NE NE NW 24-7s-9e, Aux Vases, 2,924 ft., IP 194 bbl., TD 3,093 ft., PBTD 2,950 ft.

HOOSIER NORTH—Clay, February; National Association Petroleum Co. 1 Wattles, NE SE SW 35-5n-7e, McClosky, 2,891 ft., IP 94 bbl., TD 2,908 ft.

HOOSIER NORTH—Clay, July; Evans & Barrow 1 Brooks Comm., NE NW NE 35-5n-7e, lower O'Hara, IP 20 bbl., TD 2,905 ft.

HOOSIER NORTH—Clay, October; J. W. Rudy 1 Bateman, SW SE SE 26-5n-7e, Cypress, 2,560 ft., IP 28 bbl., TD 2,565 ft.

INMAN—Gallatin, August; Clark 2 Dailey, SW SE 19-8s-10e, Pennsylvania, 924 ft., IP 25 bbl., TD 932 ft.

INMAN NORTH—Gallatin, February; Coy Oil Co. and Ashland 1 Foster, NW SE NW 11-8s-9e, Hardinsburg, 2,330 ft., IP 24 bbl., TD 2,360 ft.

INMAN NORTH—Gallatin, April; Coy & Ashland 2 Foster, SW SE NW 11-8s-8e, Cypress, 2,510 ft., IP 50 bbl., TD 2,524 ft.

INMAN NORTH—Gallatin, May; Coy & Ashland 3 Foster, SE SE NW 11-8s-8e, Tar Springs, IP 52 bbl., TD 2,545 ft.

JUNCTION NORTH—Gallatin, January; Delta Drilling Co. 1 Ingleton, SE NE SW 34-8s-9e, Pennsylvania, 1,564 ft., IP 40 bbl., TD 1,587 ft.

KENNER NORTH—Clay, April; National Association Petroleum Co. 4-A Theobold, NW NW SW 17-3n-6e, McClosky, 2,964 ft., IP 300 bbl., TD 3,041 ft.

KENNER WEST—Clay, April; Phillips Petroleum Co. 1 Randall, SW SW NE 23-3n-5e, Bethel, 2,705 ft., IP 241 bbl., TD 3,006 ft., PBTD 2,716 ft.

KENNER WEST—Clay, October; Phillips Petroleum Co. 4 Colclasure, NW NE SW 23-3n-5e, McClosky, IP 38 bbl., TD 3,047 ft.

LANCASTER CENTRAL—Wabash, January; Nu Enamel 1 A. H. Barnes, NW NE NE 7-1n-12w, lower O'Hara, 2,739 ft., IP 168 bbl., TD 2,854 ft.

LANCASTER CENTRAL—Wabash, March;

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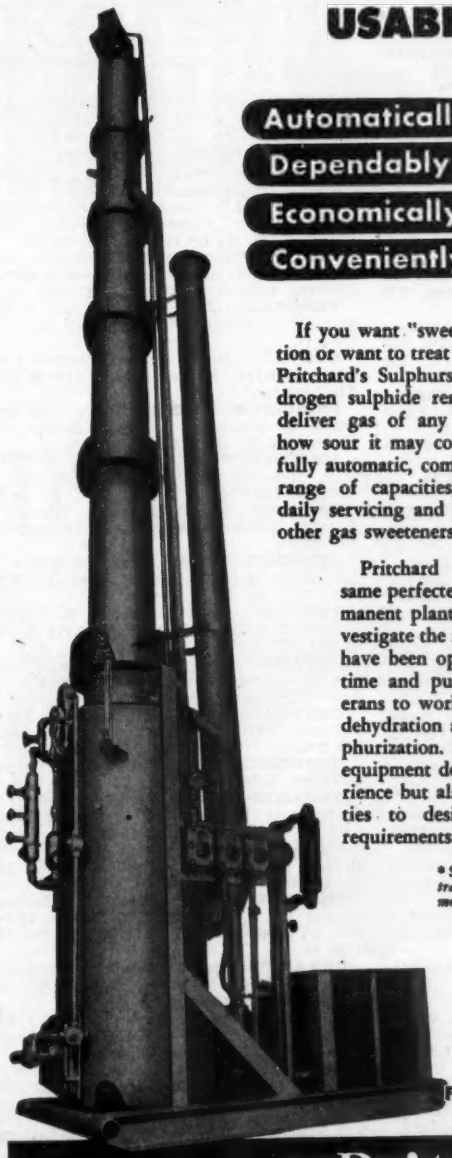

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Pritchard installations employing the same perfected principles in large-scale permanent plants are equally economical. Investigate the many Pritchard projects which have been operating over long periods of time and put this qualified team of veterans to work on your own gas problems, dehydration and cleaning as well as desulphurization. Pritchard offers not only the equipment developed from thorough experience but also the organization and facilities to design and construct for any requirements.

* SULPHURSORBER *is a registered trade name for gas purification equipment produced by J. F. Pritchard & Co.*

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Nu Enamel 1 Higgins, SW NE 7-1n-13w, McClosky, 2,808 ft., IP 50 bbl., TD 2,812 ft.

LANCASTER EAST—Wabash, March; Arvin Drilling Co. 1 Alka, SW SW NE 35-2n-13w, Rosiclare, 2,662 ft., IP 150 bbl., TD 2,750 ft., PBTD 2,677 ft.

MAIN—Crawford, April; W. H. Wright 1 Walters, NE SW SE 19-7n-12w, Salem, 1,817 ft., IP 20 bbl., TD 1,823 ft.

MAUD—Wabash, November; Ill. Mid-Continent Petroleum Corp. 1 T. Grundon, SW SW NW 35-1s-13w, Cypress, 2,287 ft., IP 200 bbl., TD 2,308 ft.

MAUD NORTH—Wabash, August; Hayes & Wolfe 1 Peter A, NW NW NW 20-1s-13w, Rosiclare, 2,859 ft., IP 32 bbl., TD 2,939 ft.

MAUNIE NORTH — White, December; Rosiclare, 3,035 ft.

MILETUS—Marion, July; Association Petroleum Corp. 1 Adams, NW SE NE 21-4n-4e, McClosky, IP 42 bbl., TD 2,418 ft.

MILETUS—Marion, May; Sun Oil Co. 2 Kaiser, SE SW SW 16-4n-4e, Bethel, 2,152 ft., IP 16 bbl., TD 2,160 ft.

NEW HAVEN WEST—Gallatin, October; Sohio Petroleum Co. 2 J. W. Tedford, SE NE SE 33-7s-10e, lower O'Hara, 2,789 ft., IP 7 bbl., TD 2,936 ft.

ROLAND—White, June; Sinclair-Wyoming Oil Co. 2 Reddy, NE SE SE 2-7s-8e, Clore, 2,947 ft., IP 26 bbl., TD 2,947 ft.

RUSSELLVILLE GAS—Lawrence, June; H. A. Sprowls 2 Benson, NW NW NW 18-4n-10w, McClosky, 1,560 ft., IP 25 bbl., TD 1,570 ft.

SAILOR SPRINGS CONSOLIDATED — Clay, December; Fulk 2 Stanford, NW SW SE 9-3n-7e, lower O'Hara, 2,945 ft., IP 198 bbl., TD 3,000 ft.

SHATTUC—Clinton, June; T. M. Conrey 2 Keister, SW SW NW 27-1n-2w, Paint Creek, 1,406 ft., IP 44 bbl., TD 1,438 ft.

STANFORD WEST—Clay, March; National Association Petroleum Co. 2 J. N. Klein, NW NE NE 33-3n-7e, Rosiclare, 2,978 ft., IP 40 bbl., PBTD 3,050 ft.

WEST FRANKFORT SOUTH—Franklin, June; Harry Ames et al 1-A Thompson, NW NW NW 30-7s-3e, Aux Vases, 2,703 ft., IP 15 bbl., TD 2,731 ft.

WEST FRANKFORT SOUTH—Franklin, November; Bartmes et al 1-A W. Frankfort Packing Co., SW NW 30-7s-3e, McClosky, 2,827 ft., IP 248 bbl., TD 2,912 ft.

WHITTINGTON WEST—Franklin, May; M. H. Richardson 1 Franklin Coal Co., NE NE NE 14-5s-2e, Aux Vases & Rosiclare, IP 11 bbl., TD 2,786 ft.

WOODLAWN—Jefferson, October; Nash Redwine 1 Laney et al, SE SE SE 24-2s-1e, Rosiclare, 2,195 ft., IP 7 bbl., TD 2,217 ft.

WESTERN KENTUCKY

ANTON—Hopkins, October; O. O. Borden et al 2 Whitfield, 1-K-25, Tar Springs, 2,296 ft., IP 64 bbl., TD 2,340 ft.

BUCK CREEK—McLean, March; Holtzclaw et al 1 Cavender, 9-M-29, Pennsylvania, 1,147 ft., IP 25 bbl., TD 1,161 ft.

CAIRO, NEW—Henderson, May; Carter Oil Co. 1 Hatchett, 16-O-23, Waltersburg, 1,740 ft., IP 200 bbl., TD 2,818 ft.

LEWISBURG—Logan, October; Mitchell 1 Logsdon, 21-G-31, McClosky, 585 ft., IP 75 bbl., TD 605 ft.

MT. VERNON FERRY—Henderson, May; Sun Oil Co. 1 T. T. Williams, 24-R-20, Waltersburg 1,857 ft., IP 30 bbl., TD 1,867 ft.

PETTIT—Daviess, May, D. G. & S. Co. et al 1 Fulkerson, 5-N-29, Tar Springs, 1,198 ft., IP 3 bbl., TD 1,212 ft.

SLAUGHTERS—Webster, August; G. S. Engle et al 1 J. A. Dixon, 2-L-24, Tar Springs, 2,546 ft., IP 330 bbl., TD 2,580 ft.

UNNAMED—Webster, January; Carter Oil Co. 1 Johnson, 5-N-23, McClosky, 2,151 ft., IP 70 bbl., TD 2,731 ft.

UNNAMED—Daviess, August, Sohio 1 Sauer, 10-P-27, Waltersburg, 1,116 ft., IP 7,609 M.c.f., TD 1,119 ft.

UNNAMED—Ohio, August; George Hobbs et al 2 Boyle, 15-M-31, Jackson, 1,008 ft., IP 15 bbl., TD 1,023 ft.

UNNAMED—Ohio, September; Holman & Leffron 1 Tichenor, 15-L-30, Hardinsburg, 1,455 ft., IP 100 M.c.f., TD 1,916 ft.

UNNAMED—Ohio, September; Farmer et al 3 Bell Heirs, 11-M-30, Jackson, 1,044 ft., IP 10 bbl., TD 1,057 ft.

NEW PAYS

ANTON—Hopkins, November; O. O. Borden et al 3 O. C. Whitfield, 1-K-25, Pennsylvania, 1,344 ft., IP 1,500 M.c.f., TD 2,360 ft.

DIXIE—Henderson, April; Sun Oil Co. 1 Fannie Pritchett, 21-O-22, Tar Springs, 1,904 ft., IP 350 bbl., TD 1,926 ft.

GUFFIE—McClean, August; Ellis-DG&S 1 Bondholders et al, 22-N-27, Jackson & McClosky, 1,953 ft., IP 7 bbl., TD 1,968 ft.

TUNNEL HILL—Henderson, April; Carter Oil Co. 1 Melton, 4-N-23, Waltersburg, 1,765 ft., IP 184 bbl., TD 2,289 ft., PBTD 1,782 ft.

INDIANA

BIRDSEYE EAST—Crawford, July; Harlen L. Kays 1 St. Clair, 31-2s-2w, Salem, 895 ft., IP 6 bbl., TD 995 ft.

CATHLINETT—Knox, May; Zink 1 Halter, 7-2n-10w, Rosiclare, 1,816 ft., IP 10 bbl., TD 1,885 ft.

COE—Pike, July; Halbert 1 Ayrshire Collieries, 30-2s-7w, Barlow, 1,209 ft., IP 60 bbl., TD 1,409 ft.

COLLEGE NORTH—Posey, April; Calvert & Willis 1 Hastings, 10-8s-14w, McClosky, 2,711 ft., IP 104 bbl., TD 2,737 ft.

EVANSVILLE—Vanderburg, August; Calvert & Willis 1 Peter Egli, 2-6s-11w, Pennsylvania, 875 ft., IP 160 bbl., TD 895 ft.

MARTIN—Vanderburgh, December; J. B. Buchman 1 Wassmer, NE SW SW 6-5s-11w, Cypress, 2,286 ft., IP 20 bbl., TD 2,301 ft.

PENNVILLE—Jay, May; Grissell 1 Fee 34-12n-12e, Trenton, 988 ft., IP 80 bbl., TD 1,005 ft.

ORRVILLE—Knox, July; Ledbetter 1 Elkins, 12-1s-12w, Bethel, 2,156 ft., IP 95 bbl., TD 2,164 ft.

PRINCETON NORTH—Gibson, January; Smith & Associates 1 Gray, 8-2s-10w, Cypress, 1,814 ft., IP 17 bbl., TD 1,830 ft.

SOLITUDE—Posey, May; Heath 1 Highman, 31-5s-13w, Palestine, 1,966 ft., IP 271 bbl., TD 1,981 ft.

UNNAMED—Miami, January; Minneci 1 Butt, 24-27n-4e, Trenton, 866 ft., IP 200 bbl., TD 876 ft.

UNNAMED—Gibson, April; Houghton 1 Shoulders, 13-1s-10w, Bethel, 1,507 ft., IP 24 bbl., TD 1,515 ft.

UNNAMED—Gibson, June; G. S. Engle 1 Mauck, 27-3s-12w, Waltersburg, 1,872 ft., IP 75 bbl., TD 1,878 ft.

UNNAMED—Gibson, July; Princeton Mining Co. 2 Louis Davis, 6-2s-11w, McClosky, 2,320 ft., IP 360 bbl., TD 2,325 ft.

UNNAMED—Perry, July; Busick & Jones 1 Geyer, 6-6s-3w, Jackson, 508 ft., IP: gas, TD 516 ft.

UNNAMED—Sullivan, July; O. A. Thayer 2 Wilkey, 7-7n-9w, IP gas, TD 601 ft.

UNNAMED—Gibson, August; Ashland Oil & Refining 1 Bender, 36-3s-12w, Renault, 2,404 ft., IP 67 bbl., TD 2,547 ft.

UNNAMED—Jay, September; Pennville Drilling Co. 1 Grissell, 24n-12e, Trenton, 920 ft., IP 30 M.c.f., TD 1,015 ft.

UNNAMED—Gibson, October; Princeton Mining Co. 1 McCarty, SW SE NE 13-2s-11w, St. Genevieve, 2,142 ft., IP 120 bbl., TD 2,163 ft.

UNNAMED—Miami, October; Barsland Oil Co. 4 Tillett, 21-27n-4e, Trenton, 863 ft., IP 80 bbl., TD 875 ft.

UNNAMED—Posey, October; Heath 1 Allen Gray Estate, 36-7s-15w, Tar Springs, 2,125 ft., IP 33 bbl., TD 2,166 ft.

UNNAMED—Sullivan, October; Myers 1 Bragdon Heirs, 5-8n-10w, Pennsylvania, 575 ft., IP 200 M.c.f., TD 590 ft.

UNNAMED—Hamilton, November; Underwood 1 Underwood, 29-18n-6e, IP 30 M.c.f., TD 874 ft.

NEW PAYS

NEW HARMONY—Posey, March; Central Pipe Line Co. 2 Pote, SW NE SE 18-5s-13w, Degonia, 1,836 ft., IP 164 bbl., TD 1,871 ft.

PATOKA EAST—Gibson, March; Savage 2 Hall, 19-1s-10w, upper Cypress, 1,772 ft., IP 60 bbl., TD 1,790 ft.

PRINCETON NORTH—Gibson, May; Princeton Mining Co. 1 Hunt, 8-2s-10e, Benoist, 1,928 ft., IP 150 bbl., TD 1,945 ft.

SPRINGFIELD—Posey, March; Heath 1 Stallings, NE SW NW 30-5s-13w, Palestine, 2,006 ft., IP 222 ft., TD 2,020 ft.

SPRINGFIELD—Posey, May; Texas Co. 1 Golden, NE NW SE 19-5s-13w, Waltersburg, 2,116 ft., IP 72 bbl., TD 2,126 ft.

UNION-BOWMAN—Pike, October; Hoosier Pipe Line Corp. 1 Walker, NE SE SW 22-1s-9w, Aux Vases, 1,501 ft., IP 71 bbl., TD 1,513 ft.

EXTENSIONS

PATOKA EAST—Gibson, March; Savage 1 Hall, SE 19-1s-10w, upper Cypress, 1,662 ft., IP 7 bbl., TD 1,675 ft.

SPRINGFIELD—Posey, May; Texas Co. 1 Golden, NW SE 19-5s-13w, Waltersburg, 2,116 ft., IP 72 bbl., TD 2,126 ft.

MICHIGAN

BARTON—Newaygo, April; Michigan Devonian Petroleum Co. 1 Corey Estate, NE SW NE 16-16n-11w, Traverse lime, 3,068 ft., IP 60 bbl., TD 3,098 ft.

BEAVER CREEK—Crawford, August; Pure Oil 1-A Beaver Creek, W/2 SW NW 16-25n-4w, IP 120 bbl., TD 4,410 ft.

CHESHIRE—Allegan; April; Ford Henry 1 Wilkinson Estate, SW NW SE 27-1n-14w, Traverse lime, IP 35 bbl., TD 1,291 ft.

JEROME—Midland, May; Collins & Whitney 1 O'Dell, C SE/2 SE NW 7-15n-1w, Dundee, 3,743-48 ft., IP 25 bbl., TD 3,772 ft.

KIMBALL LAKE—Newaygo, March; Sun Oil Co. 1 Linderer, SW SW SW 11-12n-13w, Traverse lime, 2,331-36 ft., IP 400 bbl., 46.3° gravity, TD 2,336 ft.

MONTEREY, WEST — Allegan, January; Fisher-McCall Oil & Gas 1 Bally, SW SW SW 17-3n-13w, Traverse lime, 1,649 ft., IP 20 bbl., TD 1,684 ft.

SALEM, SOUTH — Allegan, September; Ford Oil Co. 1 Bloom, SE NE NE 34-4n-13w, Traverse lime, 1,679-80 ft., IP 60 bbl., TD 1,680 ft.

TURK LAKE—Montcalm, June; Ashby Oil & Gas Co. 1 Lewis Wilson et al, SW NE NE 9-10n-8w, Stray sand, 1,071 ft., IP 2,740,000 cu. ft. of gas, TD 1,088 ft.

UNNAMED—Allegan, November; Sleep 1 Utton, NW SE SW 34-4n-13w, Traverse lime, IP 15 bbl., TD 1,692 ft.

UNNAMED—Allegan, November; Spidel 1 Winger, SE SE SE 7-1n-13w, Traverse, 1,341 ft., IP 30 bbl., TD 1,345 ft.

UNNAMED—Bay, August; Reese & McClanahan 1 Mercer & Knoodle, SW SE SE 13-17n-3e, Dundee, 2,900 ft., IP 35 bbl., TD 3,030 ft.

UNNAMED—Mecosta, November; Carter Oil Co. 1 Smith Petroleum Co., NE SW SW 9-14n-7w, Stray, IP 780,000,000 cu. ft. of gas, PBTD 1,452 ft., old well worked over.

UNNAMED—Newaygo, November; Sun Oil Co. 1 Westcott, SW SW NW 33-13n-11w, IP 750,000 cu. ft. of gas, TD 3,102 ft.

UNNAMED—Osceola, December; Jetter & deKrafft 1 Kearnes, NW SW SE 26-18n-10w, Traverse, 3,105-08 ft., IP 42 bbl., TD 3,108 ft.

UNNAMED—Roscommon, May; Sun Oil Co. D-1 State-Richfield, C NE SE 24-24n-1w, Richfield, 4,102-10 ft., IP 800,000 cu. ft. of gas, TD 4,290 ft.

UNNAMED—St. Clair, October; R. W. Matlock 1 Folkert & Kane, SE NE 29-3n-16e, IP 54,000 cu. ft. of gas, TD 344 ft.

UNNAMED—Van Buren, October; Rule 1 Peters, NE NE SE 15-2s-16w, Traverse, 1,033 ft., IP 40 bbl., TD 1,034 ft.

KANSAS

ADAMS RANCH, EAST—Meade, September; Helmerich & Payne 2 Adams, C SE SE 36-34s-30w, Mississippian, 5,880-95 ft., IP 2,860,000 cu. ft. gas, TD 6,434 ft., old well worked over.

ADOLPH—Barton, June; Kansas-Nebraska Gas Co. 1-A Unruh, NW NW NW 16-20s-15w, Arbuckle, 3,747-63 ft., IP 10,200,000 cu. ft. gas, TD 3,763 ft.

ALLEN, NORTH—Butler, October; Rex & Morris 1 Robinson, NW NE NW 36-25s-3e, Mississippian, 2,708-23 ft., IP 25 bbl., 42° gravity, TD 2,723 ft.

ANTELOPE—Marion, July; Liker et al 1 Henke, SW SE SW 33-18s-4e, Mississippi chat, 2,384-2,442 ft., IP 25 bbl., TD 2,446 ft.

ANTONIO, REVIVED — Ellis, February; Trojan Oil Co. 1 Feitz, NE NE SE 27-14s-19w, Arbuckle, 3,715-21 ft., IP 132 bbl., TD 3,721 ft., abandoned pool reopened.

ASH CREEK—Barton, March; Bay Petro-

BEST BET YET for GAS CONDENSATE CORROSION

UNIBOLT High Chrome FITTINGS

Pictured here is a UNIBOLT Flow Manifold for Christmas Tree service. Each fitting in this assembly can be furnished in high-chrome alloy to resist gas-condensate corrosion.

From a number of field tests conducted with UNIBOLT High-Chrome Alloy Steel Fittings to determine their resistance to corrosion on gas-condensate wells comes encouraging news: Harris County, Texas—UNIBOLT High-Chrome fittings in service 8 months, show no signs of corrosion; ordinary steel fittings on same well failed in 40 days! Galveston County, Texas—UNIBOLT High-Chrome Fittings still in service after 18 months; fittings previously installed on this well lasted only 4 months! Colorado County, Texas—After 209 days, UNIBOLT High-Chrome Fittings showed no signs of corrosion which made it necessary to replace ordinary steel fittings in 4 months. Southern Mississippi—UNIBOLT High-Chrome Fittings installed on gas-condensate wells on which ordinary steel fittings lasted only 30 to 40 days. Periodic examination of UNIBOLT High-Chrome Fittings reveals no corrosion after 5 to 6 months service!

UNIBOLT Couplings, Tees, Crosses and Chokes, in 10,000 and 15,000 lbs. test pressure, are now offered in high-chrome alloy. Special heat-treatment, involving extremely close control of temperatures, is essential in obtaining maximum corrosion resistance.

THORNHILL-CRAVER COMPANY

HOUSTON UNIBOLT TEXAS

leum Co. & H. H. & B. Drilling 1 Houdeyshell, NE SE SW 31-20s-15w, Arbuckle, 3,834-50 ft., IP 447 bbl., 38° gravity, TD 3,850 ft.

ASH CREEK, SOUTH—Pawnee, August; Bay Petroleum Co. & H. H. & B. Drilling 1 Smith, C E/2 NE NE 12-21s-16w, Arbuckle, 3,785-88 ft., IP 273 bbl., TD 3,788 ft., old well drilled deeper.

ASH CREEK, SOUTHWEST—Pawnee, November; Mid-Continent Petroleum Corp. 1 Bowman, SE SE NW 11-21s-16w, Arbuckle, 3,777-89 ft., IP 2,197 bbl., 37° gravity, TD 3,793 ft.

BARRY, EAST—Rooks, September; Continental Oil 1 Gilbert, NE NE SE 6-9s-18w, Arbuckle, 3,489-92 ft., IP 609 bbl., 22.7° gravity, TD 3,492 ft.

BENSON, SOUTHEAST—Pawnee, February; Cities Service Oil Co. 1 Becker, NE SE NW 32-23s-15w, Arbuckle, 4,048-4,142 ft., IP 12,800,000 cu. ft. gas, TD 4,175 ft.

BRANDENBERGER—Harvey, January; Stanolind Oil & Gas Co. 1 Brandenberger, SW NE SW 12-24s-3w, Viola, 3,875-80 ft., IP 15 bbl., 25.1° gravity, TD 4,018 ft.

BRENHAM—Kiowa; September; Stanolind Oil & Gas Co. 1 Louis Repp, NE NE NW 29-28s-17w, Mississippian, 4,843-54 ft., IP 7,300,000 cu. ft. gas, TD 5,159 ft.

BURNETT, NORTHWEST—Ellis, January; Continental Oil Co. 1 Mortgage, SE NE NE 3-11s-18w, Arbuckle, 3,618-25 ft., IP 3,000 bbl. 32.5° gravity, TD 3,625 ft.

BURNETT, SOUTH—Ellis, July; Keyes Drilling 1 Marshall, NW NW NW 25-11s-18w, Arbuckle, 3,622-24 ft., IP 3,000 bbl., TD 3,624 ft.

CARROLL, SOUTHWEST—Barton, August; Bridgeport 1 Hunt "A," NE NE NE 32-17s-14w, Lansing-Kansas City, 3,196-3,200 ft., IP 180 bbl., TD 3,473 ft.

COMBS—Cowley, January; Dewanee Oil Co. 1 Combs, NE NE SE 5-30s-5e, Bartlesville sand, 2,833-53 ft., IP 50 bbl., TD 2,863 ft.

COTTON, EAST—Trego, June; Continental Oil Co. 1 Cotton, SE SE NW 14-12s-21w, Arbuckle, 3,942-94 ft., IP 125 bbl., TD 3,994 ft.

CURRY (REVIVED)—Sedgwick, December; Drillers Gas Co. 1 Ronbach, C N/2 NW NE 11-27s-1w, Lansing-Kansas City, 2,716-20 ft., IP 25 bbl., TD 2,594 ft.

DOANE—Cowley, November; McLeish & Grallap 1 Doane, NE NE NW 36-33s-6e, Mississippian, 2,816-18 ft., IP 50 bbl., TD 3,143 ft., old well worked over.

DOLES PARK—McPherson, January; W. C. McBride 1 Waln, NE NE SE 12-19s-1w, Mississippi lime, 2,632-42 ft., IP 283,600 cu. ft. gas, TD 2,875 ft.

EHLY—Barton, December; R. L. Williams 1 Ehly, SE SE NW 9-18s-11w, Arbuckle, 3,314-18 ft., IP 173 bbl., 46° gravity, TD 3,318 ft.

ESFIELD—Barton, November; Bennett & Roberts et al 1 Esfield, SE SE NW 15-16s-11w, Arbuckle, 3,354-58 ft., IP 138 bbl., 37° gravity, TD 3,358 ft.

GEOROB—McPherson, June; Westgate & Greenland et al 1 Robinson, NW NW SE 31-17s-1w, Mississippi lime, 2,665-72 ft., IP 160 bbl., TD 2,672 ft.

GICK—Rooks, November; Continental Oil Co. 1 Gick, NE NW NE 30-9s-19w, Arbuckle, 3,579-90 ft., IP 611 bbl., 34° gravity, TD 3,590 ft.

HEYEN, WEST—Stafford, October; Musgrove Petroleum Co. 1 Lanterman, NW NW NW 23-22s-12w, Arbuckle, 3,676-79 ft., IP 1,842 ft., 40° gravity, TD 3,679 ft.

HOFFSOMER—McPherson, August; Mallard Drilling Co. et al 1 Hoffsommer, NW NW SE 6-18s-1w, Mississippi lime, 2,752-72 ft., IP 125 bbl., TD 2,800 ft.

HOUSTON—Graham, September; Wilcox and B & R 1 Rush, NE NW NW 9-6s-22w, Lansing-Kansas City, 3,506-14 ft., IP 297 bbl., 33° gravity, TD 3,873 ft.

IRVIN—Ellis, February; Stanolind Oil & Gas Co. 1 Irvin, SE SE SE 6-14s-19w, Arbuckle, 3,853-60 ft., IP 142 bbl., 37° gravity, TD 3,874 ft.

JOSEPH—Butler, November; Cox & Burns 1 Joseph, NE SE NE 18-24s-5e, Mississippi chat, 2,491-2,503 ft., IP 15 bbl., TD 2,503 ft.

KENILWORTH—Stafford, July; Brunson et al 1 Howard, NW NW SE 15-22s-13w, Lansing-Kansas City, 3,505-12 ft., IP 297 bbl. 30° gravity, TD 3,793 ft.

KRAMER-STERN, SOUTH—Butler, May; Huber, Dunne & Strait 1 Gardiner, SW SE NW 15-28s-6e, Viola, 3,036-38 ft., IP 35 bbl., 37.5° gravity, TD 3,038 ft.

LIBERAL, SOUTHEAST—Seward, January; Stanolind Oil & Gas Co. 1 Feather, SW SW NE 15-35s-33w, Cherokee sand (Pennsylvanian), 6,157-85 ft., IP 4,965,000 cu. ft. gas, TD 8,243 ft.

LORRAINE, NORTH—Ellsworth, March; Bennett & Roberts 1 Dobrinski, NW NW NE 16-17s-9w, Lansing-Kansas City, 2,977-81 ft., IP 50 bbl., TD 3,310 ft.

LOST SPRINGS, SOUTH—Marion, November; Saco Oil 1 Mazrat, NE NE SW 16-18s-4e, Mississippian, 2,412-45 ft., IP 35 bbl., 36° gravity, TD 2,445 ft.

MARNANE, REVIVED—Butler, September; Adair 1 Marnane, SW SW SW 20-26s-3e, Mississippian, 2,825-44 ft., IP 20 bbl., TD 2,844 ft., abandoned pool reopened.

O'CONNOR—Stafford, May; Huber Corp. 1 O'Connor, C NW NW 16-24s-15w, Arbuckle, 4,063-73 ft., IP 26,000,000 cu. ft. gas, TD 4,073 ft.

PARADISE CREEK—Rooks, April; W. L. Hartman 1 Rempke, NW NW SE 21-9s-18w, Arbuckle, 3,576-92 ft., IP 1,470 bbl., 25.5° gravity, TD 3,592 ft.

PAT CREEK—Kingman, February; Plains Exploration 1 Swander, SW SE SW 20-28s-9w, Viola, TD 4,407-11 ft., IP 1,604 bbl., 41.8° gravity, TD 4,565 ft.

PUNDSACK—Stafford, October; Stanolind Oil & Gas Co. 1 Pundsack, SE SE SW 19-21s-13w, Arbuckle, 3,736-43 ft., IP 89 bbl., 27° gravity, TD 3,743 ft.

QUIVIRA—Rice, February; Drillers Gas Co. 1 Dinsmore, SW SW NE 36-19s-9w, Tarkio sand, 1,970-85 ft., IP 2,500,000 cu. ft. gas, TD 3,293 ft., old well worked over.

RICKS, SOUTHEAST—Rice, December; Adair and El Dorado Refining Co. 1 Chamberlain, NW NW NE 18-19s-10w, Arbuckle, 3,335-39 ft., IP 376 bbl., TD 3,339 ft.

RIGA (REVIVED)—Trego, March; Doley Oil Co. 1 Moon, NW NW NE 20-13s-21w, conglomerate, 2,902-33 ft., IP 46 bbl., TD 3,938 ft., old pool reopened.

ROCK CREEK—Lyon, March; Murphy et al 1 Keyes, NW NW NE 32-21s-11e, sand, 1,930-42 ft., IP 35 bbl., TD 1,942 ft.

RUSH CENTER—Rush, July; Great Lakes Carbon Co. 1 Dirks, SW SW SE 16-18s-18w, Arbuckle, 3,838-51 ft., IP 122 bbl., 42.4° gravity, TD 3,865 ft.

SANDAGO—Stafford, August; Sohio Oil Corp. 1 Schrepel, SE SE SE 12-21s-12w, Arbuckle, 3,482-3,515 ft., IP 363 bbl., 32.4° gravity, TD 3,515 ft.

SCHOOL CREEK—Cowley, August; Mid-Plains & Veeder 1 Reidy, NE NW NW 15-32s-7e, Bartlesville, 2,817-31 ft., IP 25 bbl., TD 2,965 ft.

SCHULTE (REVIVED)—Sedgwick, July; Aladdin Petroleum Co. 1 Dugan, NW NW SE 7-28s-1w, Simpson, 3,659-63 ft., IP 2,955 bbl., 41.5° gravity, TD 3,663 ft., abandoned pool reopened by an extension.

SEMISCH—Butler, September; Dunn & Strait 1 Semisch, SW SE SW 4-29s-6e, Bartlesville, 2,796-2,826 ft., IP 50 bbl., TD 2,829 ft.

SHINN—Butler, January; Weidmann 1 Shinn, SW SW NE 19-29s-8e, Mississippi lime, 2,763-73 ft., IP 30 bbl., TD 2,773 ft.

SILVERS—Rooks, May; Aylward Producing Co. 1 Silvers, NW NW NE 21-8s-19w, Arbuckle, 3,466-73 ft., IP 249 bbl., TD 3,473 ft.

SOLOMON, NORTHEAST—Ellis, January; Skelly Oil Co. 1 M. R. Allen, SE SE SW 22-11s-19w, Arbuckle, 3,638-43 ft., IP 323 bbl., 19.5° gravity, TD 3,643 ft.

TORRANCE—Pawnee, April; Huber, Goodpaster & Harbar 1 Torrance, SW SW SW 19-21s-15w, Heebner, 3,847-57 ft., IP 40,000,000 cu. ft. gas, TD 3,857 ft.

UNNAMED—Cowley, June; Nadel & Gussman 1 Weigle, NE NE NE 18-31s-6e, Bartlesville, 2,845-88 ft., IP 17 bbl., TD 2,891 ft.

UNNAMED—Marion, December; E. H. Adair 1 Jensen, SW SW NE 27-22s-4e, Mississippian, 2,442-48 ft., IP 100 bbl., 34° gravity, TD 2,448 ft.

UNNAMED—Marion, December; Goering 1 Wenger, NW NW SW 11-21s-3e, Misener, 2,771-82 ft., IP 50 bbl., 37.4° gravity, TD 2,782 ft.

UNNAMED—Rice, March; Drillers Gas 1 Dinsmore, SW SW NE 36-19s-9w, IP 7,100,000 cu. ft. gas, TD 2,200 ft.

UNNAMED—Rooks, October; Continental Oil Co. 1 Finnesy Unit, SE SE NE 14-10s-18w, Lansing-Kansas City, 3,542-58 ft., IP 26 bbl., TD 3,763 ft.

UNNAMED—Stafford, December; Magnolia Petroleum Co. 1 Ranson, C E/2 SE NE 7-24s-11w, IP 18 bbl., no tops reported, TD 3,797 ft., old well drilled deeper.

UNNAMED—Stafford, June; Virginia Drilling Co. 1 Graw, SE SE NW 14-21s-12w, Arbuckle, 3,550-80 ft., IP 87 bbl., TD 3,580 ft.

UNNAMED—Woodson, July; King et al 1 Tichnor, SE SE SE 24-23s-15e, Mississippi lime, 1,457-88 ft., IP 1,000,000 cu. ft. gas, TD 1,488 ft.

VOHS, NORTHWEST—Rooks, May; Harbar et al 1 Baldwin, C N/2 NE SE 9-10s-19w, Lower Kansas City, 3,442-50 ft., IP 773 bbl., TD 3,771 ft.

WEITZEL—Rush, April; Darby & Bothwell 1 Weitzel, SW SW NW 1-16s-20w, conglomerate, 3,678-90 ft., IP 194 bbl., 35° gravity, TD 3,690 ft.

WOMACK—Butler, March; Huber Corp. 1 Womack, NE NW NE 19-28s-6e, Bartlesville, 2,690-97 ft., IP 2,000,000 cu. ft. gas, TD 3,191 ft., old well worked over.

OKLAHOMA

ANTIOCH—Garvin, June; B & B Drilling Co. 1 Pharoah, NW NW NW 15-3n-2w, sand, 5,563-71 ft., IP 210 bbl., 42°-gravity, TD 5,627 ft.

ANTIOCH, NORTHEAST—Garvin, November; Gulf Oil Corp. 1 Hamilton, NW SE SW 11-3n-2w, Bromide, 5,764-88 ft., IP 194 bbl., TD 6,194 ft.

ANTIOCH, SOUTHEAST—Garvin, October; Cities Service Oil Co. 1 Biffle, NW SW NE 23-3n-2w, sand, 5,424-45 ft., IP 66 bbl., 50°-gravity, TD 5,562 ft.

ASPHALTUM (REVIVED)—Jefferson, September; Edward et al 1 Carter-Bonner, 21-3s-4w, sand, 1,625-73 ft., IP 5,500,000 cu. ft gas, TD 2,608 ft.

ASHER, SOUTH—Pontotoc, October; Cooper 1 Marshall, NE NE NW 31-6n-4e, Wanette, 3,240-46, IP 50 bbl., 41° gravity, TD 3,246 ft.

BROCK, WEST—Carter, April; Gibson 1 Smith, NW NW SW 14-5s-1w, Pennsylvanian, 4,134-48 ft., IP 105 bbl., 37° gravity, TD 4,566 ft.

CACHE CREEK, NORTH—Cotton, February; Bridwell Oil Co. 1 Ko-Port, E/2 SW NW 25-3s-11w, sand, 1,377-82 ft., IP 16 bbl., TD 1,482 ft.

CACHE CREEK, WEST—Cotton, January; G. H. & T. Oil Co. 1 Taylor, SW SE SE SW 34-3s-11w, sand, 1,445-48 ft., IP 70 bbl., 35° gravity, TD 1,448 ft.

CACHE CREEK, NORTHWEST—Cotton, August; Amerada Petroleum Corp. 1 Per-Man-Su, SE SW NE 35-3s-11w, sand, 1,402-13 ft., IP 12 bbl., 35° gravity, TD 1,413 ft.

CAMP, NORTHWEST—Stephens, June; Texas Co. 1 Denny, NE NE NE 1-2s-4w, Springer sand, 6,798-6,820 ft., IP 28 bbl., TD 7,382 ft.

CERES, SOUTH—Noble, Kay; Kingwood Oil Co. 1 Bolay, SW SW NW 35-23n-1w, Bartlesville sand, 4,487-89 ft., IP 723 bbl., TD 4,489 ft.

CERES, SOUTHEAST—Noble, February; Harwell 1 Greer, SW SW SW 24-23n-1w, Bartlesville, 4,370-95 ft., IP 185 bbl., 43.5° gravity, TD 4,395 ft.

COUNCIL CREEK, SOUTHWEST—Payne, September; Wheeler & Johnson O. & R. 1 Soric, NW NW NW 19-19n-4e, Bartlesville sand, 3,774-3,800 ft., IP 70 bbl., 35° gravity, TD 4,281 ft.

COYLE, SOUTH—Logan, June; Gulf Oil Corp. 1 Bliss, SE NW NE 26-17n-1e, Layton sand, 3,634-58 ft., IP 11 bbl., 47.6° gravity, TD 5,193 ft.

CRUCE, SOUTHEAST—Stephens, September; Gilmer Oil 1 Creel, NE SE NW 5-1s-5w, Lower Dornick Hills, 6,265-6,442 ft., IP 7,800,000 cu. ft. gas, TD 6,442 ft.

COOKIETOWN, EAST—Cotton, March; C. P. Burton 1 Pah Di, NE NE NE 23-3s-12w, sand, 1,483-92 ft., IP 175 bbl., 37° gravity, TD 1,492 ft.

DAGGETT, SOUTHEAST—Lincoln, September; Davon Oil Co. 1 Dye, SE SW NW 15-14n-5e, Prue sand, 3,370-3,422 ft., IP 489 bbl., 49° gravity, TD 3,422 ft.

DEEP FORK, SOUTH—Creek, November; Anderson-Prichard Oil Corp. 1 Abraham,

CN/2 SW NW 29-14n-9e, Tanneha sand, 1,325-47 ft., IP 8 bbl., 36° gravity, TD 1,334 ft.

DUNCAN, NORTHEAST—Stephens, October; Mudge 1 Sembritzky, SE NW SE 24-1n-7w, sand, 7,170-88 ft., IP 160 bbl., 40.5° gravity, TD 7,188 ft.

ELK CITY—Beckham, December; Shell Oil Co., Inc., Walters, NE SW 14-10n-21w, Granite Wash, 9,260-9,360 ft., IP 469 bbl. distillate, TD 13,133 ft.

ELMORE, NORTHEAST—Garvin, April; Anderson-Prichard Oil Corp. 1 Seaton, SE SE NW 14-2n-2w, Deese sand, 6,424-54 ft. IP 912 bbl., 42° gravity, TD 6,507 ft.

EDMOND, NORTHEAST—Oklahoma, February; Fleet 1 Patten, SE SE NE 26-14n-4w, Bartlesville, 6,403-43 ft., IP 67 bbl., 40.3° gravity, TD 6,610 ft.

EOLA—Garvin, May; Sohio Petroleum Co. 1 Howard, C SE SE NW 17-1n-2w, Basal Bromide sand, 10,060-10,202 ft., IP 1,245 bbl., TD 10,234 ft.

EOLA, SOUTHWEST—Garvin, November; Sunray Oil Corp. 1 Romine, SE SW SE 19-1n-2w, Arbuckle, 1,762-80 ft., IP 92 bbl., 29° gravity, TD 1,780 ft.

FISH, EAST—Hughes, September; Lario Oil & Gas Co. 1 Fream, SW SW NE 33-7n-8e, Booch, 2,750-65 ft., IP 25 bbl., 33° gravity, TD 3,514 ft.

FORT SILL, NORTH—Comanche, May; Texola Drilling Co. 1 Tas-Saw, SW NE SW 34-4n-11w, Simpson sand, 1,740-61 ft., IP 3,400,000 cu. ft. gas, TD 1,762 ft.

GIBSON, WEST—Wagoner, November; Petty 1 Steil, SW SE SE 10-16n-18e, Tyner, 750-86 ft., IP 5,000,000 cu. ft. gas, TD 1,000 ft.

GOODNIGHT, NORTHEAST—Payne, November; Fox & Fox 1 Gibson, NW SE SW 8-17n-2e, 4,225-41 ft., IP 20 bbl., TD 4,917 ft.

ICONIUM NORTHWEST—Logan, October; Woods Drilling Co. 1 Crabtree, NW NE NW 4-16n-1e, second Wilcox, 5,238-60 ft., IP 72[illegible] bbl., 38° gravity, TD 3,246 ft.

INGALLS—Payne, November; Jackson 1 Butler, SW NE NE 2-18n-4e, Mississippi lime, 3,745-88 ft., IP 5 bbl., TD 4,037 ft.

JOHNSON-COOPER—Stephens, February; Coline Oil Co. 1 Johnson-Cooper, SE NW SE 1-2n-8w, sand, 9,015-40 ft., IP 15 bbl., 40° gravity, TD 12,159 ft.

KAW, SOUTH—Osage, February; Oliphant 1 Osage, SW SW NE 1-25n-4e, Mississippi chat, 3,328-45 ft., IP 35 bbl., 41° gravity, TD 3,351 ft.

KEOKUK, NORTHEAST—Okfuskee, June; J. M. Halco et al 1 Wells, 12-11n-6e, Calvin, 2,869-84 ft., IP 60 bbl., 40.3° gravity, TD 2,884 ft.

LAFFOON, WEST—Lincoln, February; Danciger & Mercury 1 Shaffner, C NE SE 7-13n-6e, Simpson dolomite, 4,370-4,428 ft. IP 8 bbl., 20° gravity, TD 4,440 ft.

LIGHT—Beaver, March; Hunt 1 Light Estate, C SE SE 9-6n-21ecm, Mississippi lime, 6,226-55 ft., IP 15 bbl. distillate 3,848,000 cu. ft. gas, TD 6,960 ft.

LIMA, SOUTHEAST—Seminole, April; Davon Oil Co. 1 (Mee) Miller, NE NE SW 16-8n-7e, Cromwell, 3,260-63 ft., IP 110 bbl., TD 4,274 ft.

LINDSAY, EAST—Garvin, February; Oil Carriers, Inc., 1 Martin-Rose, NE NE 1-4n-4w, Bois d'Arc & Chimneyhill, 8,585-8,720 ft. & 9,060-9,100 ft., IP 374 bbl., 42 gravity, TD 10,320 ft.

LINDSAY, NORTHEAST—McClain, February; Bauman Drilling Co. 1 Ainsworth, NE NW SE 26-5n-4w, Chimneyhill lime, 9,892-9,994 ft., IP 662 bbl., 41° gravity, TD 10,977 ft.

LONGVIEW, NORTHEAST—Noble, August; Davon Oil Co. 1 Tautfest, NE SW NE 33-24n-1e, Bartlesville, 4,315-60 ft., IP 10 bbl., TD 4,526 ft.

MARION, NORTHWEST—Oklahoma, December; Peppers 1 Hayes-Witcher, C SW SE 32-13n-2w, Bois d'Arc, 6,276-6,332 ft., IP 75 bbl., TD 6,332 ft.

MAYSVILLE, SOUTH—Garvin, July; Ledgerwood 1 Hope, NE NW SE 32-4n-2w, 6,228-48 ft., IP 40 bbl., TD 7,000 ft. (Old well worked over).

MENO, SOUTHEAST—Major, April; Olson Oil Co. 1 Ott, W/2 SW SE 2-21n-9w, second Wilcox, 8,005-8,124 ft., IP 44 bbl. distillate, TD 8,124 ft.

MERIDIAN, SOUTHEAST—Logan, May; Jordan Petroleum Co. 1 Porter, NE SE SE 30-16n-1e, Bartlesville, 4,878-90 ft., IP 26,662,000 cu. ft. gas, TD 4,890 ft.

MUNGER—Oklahoma, May; British-American Oil Producing Co. 1 Van Ostrand, C SE SW 2-12n-2w, Hunton lime, 6,152-75 ft., IP 126 bbl., 42° gravity, TD 6,440 ft.

NEW HOPE, SOUTHEAST—Garvin, September; Carter Oil Co. 1 Bradshaw, C NW SE 4-4n-3w, Deese sand, 7,142-54 ft., IP 266 bbl., 40° gravity, TD 9,371 ft.

PANTHER CREEK—Garvin, January; Carter Oil Co.-Vierson 1 Hart, SE SE SE 23-3n-3w, Deese sand, 7,206-28 ft., IP 20 bbl., 59.8° gravity, TD 7,721 ft.

PECKHAM, SOUTHWEST—Kay, January; Westgate-Greenland 1 Wentz, SE SE NW 28-28n-1e, Burgess sand, 3,510-44 ft., IP 14 bbl., 36° gravity, TD 3,796 ft.

PERKINS, SOUTH—Lincoln, August; Texas Co. 1 Ida Carter, NW SW NE 25-17n-2e, Hunton lime, 4,505-18 ft., IP 322 bbl., TD 4,795 ft.

PERRY, NORTHWEST—Noble, September; Warren Petroleum Corp. 1 Burgess, NE SE NW 8-21n-1w, sandy dolomite, 5,166-78 ft., IP 163 bbl., 41.6° gravity, TD 5,178 ft.

POLO, SOUTHEAST—Noble, June; Derby Oil Co. & Republic Natural Gas Co. 1 Weigle, NE NE SE 2-21n-2w, second Wilcox, 5,133-39 ft., IP 853 bbl., 41.6° gravity, TD 5,139 ft.

PRAIRIE BELL, EAST—Oklahoma, August; Harper-Turner et al 1 Hyden, SE SE NW 10-14n-3w, second Wilcox, 6,526-34 ft., IP 185 bbl., 36° gravity, TD 6,561 ft.

RANDLETT, SOUTH—Cotton, May; Ross & Duncan 1 Dugan, SW SE SW 5-5s-12w, sand, 1,578-81 ft., IP 40 bbl., 38° gravity, TD 1,591 ft.

RANDLETT, SOUTHWEST—Cotton, June; Ross 1 Alexander, NE NE NW 7-5s-12w, sand, 1,565-72 ft., IP 22 bbl., TD 1,572 ft.

RINGWOOD, SOUTHEAST—Major, July; Superior Oil Corp. 1 Scott, NE NW SE 27-22n-10w, Manning sand, 6,723-46 ft., IP 72 bbl., 39.9° gravity, TD 8,312 ft.

SHAWNEE LAKE, WEST—Pottawatomie, September; Deep Rock Oil Co. et al 1 Black, SE SE NW 17-10n-2e, Wilcox, 6,021-26 ft., IP 175 bbl., 37.2° gravity, TD 6,026 ft.

SOLDIER CREEK, SOUTHWEST—Cotton, January; Fisher et al 1 Bates, SE NW NW 17-3s-11w, sand, 1,580-82 ft., IP 15 bbl., 60° gravity, TD 1,586 ft.

SPAULDING TOWNSITE—Hughes, February; Mid-Continent Petroleum Corp. 1 Thompson, SE NW SW 11-6n-8e, Booch, 2,670-90 ft., IP 20 bbl., 38° gravity, TD 2,730 ft.

TIBBONS, NORTHWEST—Creek, December; Bates 1 Fulsom, SE SE SE 13-15n-8e, Dutcher, 3,120-36 ft., IP 7,800,000 cu. ft. gas, TD 3,800 ft.

TYROLA, NORTHWEST—Seminole, June; Gem Oil Co. 1 Rock, SE SE SW 32-6n-6e, Lower Allen, 1,996-2,006 ft., IP 50 bbl., 38.4° gravity, TD 3,673 ft.

UNNAMED—Cleveland, December; Faultline 1 School Land, C NE NW 36-10n-2w, Simpson dolomite, 7,128-47 ft., IP 240 bbl., 38.7° gravity, TD 7,406 ft.

UNNAMED—McClain, October; Sinclair Prairie Oil Co. 1 McDaniel, C SE SE 35-5n-4w, Bromide sand, 10,524-76 ft., IP 410 bbl., 51.3° gravity, TD 11,262 ft.

VALLEY GROVE, SOUTH—Okfuskee, May; T. N. Berry & Co. 1 Parker, SW SW SW 11-12n-8e, Cromwell, 3,751-61 ft., IP 92 bbl., 38° gravity, TD 3,761 ft.

WETUMKA, SOUTHEAST—Hughes, January; Texola Drilling Co. 1 Meadors, NE NE NW 31-9n-11e, Cromwell, 3,096-3,110 ft., IP 581 bbl., 39.2° gravity, TD 3,110 ft.

WITCHER—Oklahoma, February; Peppers Refining Co. 1 Martin Estate, C SW NE 20-13n-2w, Bartlesville, 6,065-84 ft., IP 17,700,000 cu. ft. gas, TD 6,393 ft.

NEW PAYS

APACHE—Caddo, May; Grayhill Drilling Co. 1 Westelline, SW NE NE 34-6n-12w, 760-84 ft., IP minimum producer, TD 845 ft.

BETHEL, WEST—Seminole, September; McIntyre, Sherman & Cummings 1 Brown, SW SE NE 14-9n-7e, Booch, 3,230-70 ft., IP 40 bbl., TD 4,337 ft. (Old well worked over).

BURNETT, WEST—Pottawatomie, May; Continental Oil Co. & Phillips Petroleum Co. 1 Rosebush, SE NE NW 19-8n-2e, Hunton, 5,390-5,429 ft., IP 250 bbl., 37° gravity, TD 6,234 ft.

COUNCIL CREEK, SOUTHWEST—Payne, September; Wheeler 1-A Soric, NW NW NW 19-19n-4e, 3,314-25 ft., IP 65 bbl., 42° gravity, TD 3,325 ft.

COFFEE CREEK DISTRICT—Oklahoma, March; Gulf Oil Corp. 1 Pauline, NE NE SW 23-14n-2w, Bartlesville, 5,638-43 ft., IP 1,520,000 cu. ft. gas, TD 6,199 ft.

EAST ADA DISTRICT—Pontotoc, November; Mullins 1 Adair, NE NE NW 14-4n-7e, Calvin, 733-60 ft., IP 3 bbl., TD 2,765 ft.

EAST ADA DISTRICT—Pontotoc, December; Belgan 2 Britt, NE SW SW 20-4n-7e, Gilcrease sand, 1,482-92 ft., IP 57,000,000 cu. ft. gas, TD 1,492 ft.

GARCREEK—Seminole, August; Gulf et al 1 Patterson, NE NW NE 17-10n-7e, Cromwell, 3,718-23 ft., IP 23 bbl., 37° gravity, TD 3,734 ft.

GARBER, NEW—Garfield, August; Cities Service Oil Co. 2 Mariner, NW SE NW 6-22n-3w, Oswego, 4,620-40 ft., IP 280,000 cu. ft. gas, TD 5,238 ft. (Old well worked over).

GREASY CREEK—Hughes, September; Hall 1 Burkett, SW SW SE 34-8n-10e, sand, 1,960-68 ft., IP 1,500,000 cu. ft. gas, TD 1,968 ft.

HANEY, EAST—Seminole, January; Standard Oil Co. of Kansas 1 Roberts, SW SW SE 15-10n-7e, Gilcrease sand, 3,547-59 ft., IP 234 bbl., 40° gravity, TD 3,572 ft.

HARRIS CORNER—Hughes, February; Deep Rock Oil Co. & Greis 1 Wilbanks, NW NW SE 6-6n-10e, Gilcrease, 3,189-99 ft., IP 36,600,000 cu. ft. gas, TD 3,943 ft.

KEOKUK—Seminole, February; Trant 1-A Canard, SE SW SE 35-11n-6e, Lower Wewoka, 2,609-24 ft., IP 3,900,000 cu. ft. gas, TD 2,646 ft.

KNOX—Stephens, February; McCasland 1 Woods "B," NW SE NE 17-3n-5w, Deese limy sand, 3,098-3,120 ft., IP 15,000,000 cu. ft. gas, TD 3,477 ft.

LINDSAY, NORTH—McClain, January; Plymouth Oil Co. 1 Gibson, SW SE SW 14-5n-4w, Hunton, 10,145-90 ft., IP 110 bbl., 44° gravity, TD 11,571 ft.

OKMULGEE DISTRICT—Okmulgee, September; Ryan Consolidated 1 Watson, SE NE SW 20-13n-12e, Dutcher, 2,372-84 ft., IP 4,500,000 cu. ft. gas, TD 2,384 ft.

PADEN, SOUTHWEST—Okfuskee, April; Crosbie 1 Schultz, SE NE SW 30-12n-7e, Earlsboro, 3,348-64 ft., IP 75 bbl., 36° gravity, TD 3,364 ft.

PECK DISTRICT—Lincoln, June; Sam King 1 Bledsoe, NW NE NW 11-13n-6e, Prye, 2,924-29 ft., IP 10 bbl., 38° gravity, TD 2,932 ft.

RANDLETT, SOUTHWEST—Cotton, August; Nixon Petroleum Co. & W. L. U. Drilling Co. 1 Warren, NE SE SE 1-5s-13w, Megargel lime, 1,596-1,616 ft., IP 13 bbl., 40° gravity.

ST. LOUIS DISTRICT—Pottawatomie, September; Continental Oil Co. 6 Negahnquit, NW NE NW 19-7n-4e, Pennsylvania sand, 3,611-21 ft., IP 15 bbl., TD 3,842 ft.

SHOLEM ALECHEM—Carter, December; Gra-Okla. 2 Putnam, NW NW SW 30-1s-3w, Deese, 3,310-30 ft., IP 30 bbl., 29° gravity, TD 5,736 ft.

THOMAS—Kay, August; Goldenstern 4 Chambers, CS/2 SW NE 9-25n-2w, Arbuckle, 4,532-40 ft., IP 54 bbl., 48° gravity, TD 4,540 ft.

WAYNE, SOUTHWEST—McClain, January; Wood Oil Co. 1 Henderson, SE NE NW 14-5n-2w, Hunton lime, 7,097-7,123 ft., IP 33 bbl., 44° gravity, TD 7,235 ft.

WAYNE SOUTHWEST—McClain, July; Dearing 1 Howard, NW NW 15-5n-2w, Deese, 7,044-88 ft., IP 20 bbl., 40° gravity, TD 7,200 ft.

WELEETKA DISTRICT—Okfuskee, October; Fleming 3 Harjo, NW SE NW 16-10n-11e, Simpson sand, 1,640-45, IP 240 bbl., 41° gravity, TD 1,645 ft.

WETUMKA, SOUTHEAST—Hughes, August; Mid-Continent Petroleum Corp. 1 Meadors, NW NW NW 36-9n-10e, Booch, 2,250-80 ft., IP 2,100,000 cu. ft. gas, TD 3,197 ft.

WITCHER—Oklahoma, September; Oklahoma Natural Gas Co. 1 Lair, C SW SW 21-13n-2w, Bois d'Arc, 6,120-40 ft., IP 18 bbl. distillate, 54,000,000 cu. ft. gas, TD 6,171 ft.

Exploratory and Development Drilling—

Where It Occurred and the Results

OKLAHOMA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	73	9	0	64	242,687
February	81	9	1	71	269,774
March	54	4	1	49	169,284
April	57	7	1	49	210,313
May	57	10	3	44	196,452
June	85	11	2	72	313,457
July	49	9	0	40	168,308
August	80	13	2	65	279,245
September	79	19	5	55	286,352
October	85	18	3	64	333,261
November	65	7	1	57	261,109
December	78	11	4	63	330,608
Total	843	127	23	693	3,060,850

OKLAHOMA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	292	164	30	98	905,486
February	244	164	16	64	771,254
March	251	164	21	66	726,381
April	222	135	14	73	653,971
May	278	185	23	70	834,891
June	292	173	34	85	885,363
July	159	96	21	42	481,572
August	284	168	39	77	841,954
September	235	139	24	72	651,527
October	309	187	34	88	1,006,964
November	212	135	15	62	632,78
December	225	152	8	65	697,(
Total	3,003	1,862	279	*862	9,089,7(

*Includes 23 service wells.

OKLAHOMA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	365	173	30	162	1,148,173
February	325	173	17	135	1,041,028
March	305	168	22	115	895,665
April	279	142	15	122	864,284
May	335	195	26	114	1,031,343
June	377	184	36	157	1,198,820
July	208	105	21	82	649,880
August	364	181	41	142	1,121,199
September	314	158	29	127	937,879
October	394	205	37	152	1,340,225
November	277	142	16	119	893,895
December	303	163	12	*128	1,028,225
Total	3,846	1,989	302	1,555	12,150,616

*Includes 23 service wells.

OKLAHOMA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Allen	8	2	1	5	25
Antioch, SW.	36	33	0	3	13,754
Apache	6	3	1	2	2,059
Arcadia, NE.	6	3	0	3	187
Aylesworth	7	5	0	2	1,040
Bald Hill	14	9	1	4	44
Beggs & No. & So.	5	3	0	2	45
Bethel, W.	6	3	3	0	98
Bourassa	13	4	5	4	745
Bowlegs	12	7	1	4	432
Branstetter	7	3	0	4	55
Brock	9	5	0	4	94
Brock, W.	7	6	0	1	1,620
Brown & E.	7	3	1	3	253
Burnett, W.	7	6	0	1	1,152
Cache Creek Dist.	119	96	0	23	13,228
Cement	42	29	4	9	1,535
Ceres, So. & SW.	14	5	0	9	1,855
Chandler	8	7	0	1	218
Clearview & NW.	6	0	5	1	0
Cleveland	5	2	1	2	100
Coffee Creek Dist.	9	7	0	2	203
Conservation	23	10	4	9	322
Coon Creek	20	18	0	2	4,730
Crescent & NE.	8	7	0	1	460
Cruce	9	1	4	4	123
Cushing Dist.	19	12	0	7	444
Davenport	11	6	0	5	727
Davenport, So.	13	12	0	1	1,470
Dora	10	4	0	6	237
Doyle	6	2	1	3	20
Duncan, W.	16	9	1	6	432
Earlsboro, So.	7	3	0	4	101
Edmond, W.	28	26	1	1	2,685
Elmore & NE.	16	13	0	3	4,126
Empire	36	21	1	14	1,931
Fish	7	2	0	5	16
Ft. Sill	7	2	1	4	18
Fourdee	14	14	0	0	2,268
Francis & W.	5	0	2	3	0
Garcreek	14	9	0	5	5,126
Garden Grove	24	22	1	1	2,404
G. I. Joe	11	7	0	4	1,978
Glenn	37	17	0	20	237
Grayson	5	4	0	1	641
Greasy Creek Dist.	15	4	8	3	190
Grief Creek	49	40	0	9	7,723
Haney, E.	5	3	0	2	746
Hawkins, NW.	27	24	0	3	1,191
Healdton	42	32	0	10	1,259
Hewitt & W.	11	9	0	2	179
Hobart & NE.	23	15	0	8	1,565
Holdenville	16	13	0	3	619
Holdenville, E.	24	21	0	3	1,939
Holdenville, W.	16	7	2	7	421
Hoover	9	6	0	3	229
Hoover, NW.	10	7	0	3	667
Horn's Corner & No.	8	2	2	4	69
Hugoton	144	0	141	3	0
Hunter, SW.	5	4	0	1	297
Jackson	7	2	0	5	87
Jefferson & No.	5	2	0	3	114
Jones & NE.	10	9	0	1	781
Katie	9	7	0	2	1,668
Kaw, So.	7	6	0	1	652
Kellyville Dist.	9	5	0	4	83
Keokuk & No. & NE.	12	9	1	2	283
Knox	21	15	2	4	3,615
Konawa & W.	13	8	0	5	666
Lawton	16	6	1	9	31
Lindsay, E.	8	0	0	8	6,441
Lindsay, N.	9	9	0	0	3,427
Little River	22	15	0	7	1,769
Little River, E.	9	3	0	6	106
Loco	9	4	1	4	7
Lone Grove & SW.	19	13	0	6	1,004
Lovell, So. & SE.	9	4	0	5	178
Mannford Dist.	6	1	0	5	3
Maysville	15	12	0	3	3,735
Maysville, SW.	9	8	1	0	1,510
Mehan, NW.	5	3	0	2	116
Milfay	26	25	0	1	5,307
Moore, W.	5	3	0	2	680
Morse, W.	8	2	2	4	320
Oakman	8	0	0	8	0
Okemah & No.	7	3	2	2	29
Okemah, E.	8	6	0	2	328
Okla. City	14	11	0	3	1,260
Okla., Eastern	31	12	3	16	311
Olive	6	4	0	2	180
Ong	6	4	0	2	129
Osage City & E.	12	8	2	2	114
Oscar	17	14	0	3	1,094
Paden, SW.	15	12	0	3	1,654
Randlett, So. & SW.	10	7	0	3	130
Rosanna	12	9	0	3	370
Rose Valley, No.	77	51	0	26	2,759
St. Louis Dist.	8	4	0	4	297
Sancho	9	3	1	5	167
Sasakwa	6	4	0	2	97
Searight	5	0	2	3	0
Seay	16	11	0	5	72
Shawnee Lake, W.	6	3	0	3	864
Sholem Alechem	7	5	0	2	999
Slick & No. & So.	18	13	0	5	427
Soldier Creek Dist.	252	213	0	39	23,547
Spaulding, So. & SE.	30	22	1	7	869
Sporn, E.	7	7	0	0	724
Stroud, SE.	8	7	0	1	111
Sylvian, SE.	9	5	0	4	3,230
Tatums	104	89	1	14	5,742
Tussy	34	26	1	7	1,492
Velma & W.	113	97	2	14	29,303
Walters	22	6	0	16	123
Wayne, SW.	16	15	0	1	3,348
Weleetka & So. & SW.	10	2	4	4	6
Wetumka Dist.	9	2	2	5	35
Wetumka, SE.	19	8	7	4	676
Wewoka	11	6	0	5	135
Wewoka, No. & NE.	13	6	0	7	761
Wheeler	21	20	0	1	194
Wilzetta, SW.	5	4	0	1	794
Yale-Quay	11	10	0	1	218
Miscellaneous	640	313	51	276	28,873
Total	3,003	1,862	279	*862	230,377

*Includes 23 service wells.

OKLAHOMA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Alfalfa	3	0	0	3	19,973
Beaver	5	1	0	4	24,701
Caddo	3	1	0	2	22,980
Carter	13	3	0	10	65,633
Choctaw	6	0	0	6	7,632
Cimarron	4	0	0	4	18,894
Cleveland	4	1	0	3	26,745
Comanche	17	0	1	16	30,235
Cotton	198	19	0	179	385,598
Creek	19	5	1	13	61,710
Garfield	11	1	1	9	63,707
Garvin	45	14	0	31	263,679
Hughes	35	4	4	27	111,775
Jackson	7	1	0	6	13,790
Jefferson	30	0	1	29	87,508
Kay	7	2	0	5	25,674
Kingfisher	6	1	0	5	46,784
Kiowa	16	2	0	14	24,117
Lincoln	40	4	0	36	174,969
Logan	16	2	1	13	91,334
Love	4	0	0	4	9,444
Major	3	2	0	1	23,406
McClain	16	8	0	8	106,487
McIntosh	3	0	0	3	8,985
Murray	6	0	0	6	16,368
Noble	25	7	0	18	119,055
Okfuskee	25	6	1	18	85,481
Oklahoma	39	12	5	22	244,430
Osage	7	1	1	5	18,929
Pawnee	17	1	0	16	63,754
Payne	24	4	1	19	107,203
Pontotoc	16	2	1	13	40,784
Pottawatomie	20	5	0	15	99,235
Seminole	34	8	2	24	121,489
Stephens	35	6	2	27	158,431
Tillman	38	0	0	38	78,218
Miscellaneous	46	4	1	41	191,713
Total	843	127	23	693	3,060,850

PENBERTHY

SUMP PUMPS

Used wherever seepage water accumulates, the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Drainer (water or steam operated) have demonstrated their superiority in this service. Simple and rugged design—copper and bronze construction throughout.

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LITTLE TRADING CORP., INC.

153 NORTH 12TH STREET

NEWARK, NEW JERSEY

KANSAS

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	35	4	2	29	123,435
February	29	4	4	21	114,367
March	22	4	2	16	77,913
April	21	1	1	19	77,116
May	36	4	2	30	126,100
June	33	3	1	29	113,674
July	53	7	1	45	183,522
August	39	5	0	34	144,411
September	37	4	2	31	133,588
October	43	6	0	37	151,381
November	30	4	0	26	107,777
December	34	6	0	28	119,176
Total	412	52	15	345	1,472,469

KANSAS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	200	106	43	51	629,119
February	169	90	37	42	537,899
March	153	72	35	46	473,390
April	156	88	30	38	499,599
May	185	107	25	53	590,058
June	136	86	18	32	425,609
July	211	135	26	50	677,460
August	198	116	25	57	629,499
September	178	105	37	36	565,287
October	286	149	63	74	912,233
November	203	98	55	50	623,632
December	207	99	43	65	653,528
Total	2,282	1,251	437	*594	7,217,313

*Includes 27 service wells.

KANSAS

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	235	110	45	80	752,554
February	198	94	41	63	652,266
March	175	76	37	62	551,303
April	177	89	31	57	576,715
May	221	111	27	83	716,167
June	169	89	19	61	539,283
July	264	142	27	95	860,982
August	237	121	25	91	773,910
September	215	109	39	67	696,875
October	329	155	63	111	1,063,614
November	233	102	55	76	731,409
December	241	105	43	93	772,704
Total	2,694	1,303	452	*939	*8,689,782

*Includes 27 service wells.

KANSAS

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Adell	13	12	0	1	4,969
Ainsworth, So.	11	7	0	4	3,005
Albert	41	36	0	5	5,401
Allen	8	6	0	2	235
Ames	15	12	0	3	2,303
Ash Creek	18	16	0	2	6,961
Ash Creek, So. & SW.	6	2	0	4	816
Atherton	7	4	0	3	663
Augusta	28	25	0	3	837
Barry & SE.	31	23	0	8	51,230
Beaver	17	10	0	7	766
Beaver, No.	5	4	0	1	200
Behrens	8	5	1	2	413
Bemis-Shutts	34	26	0	8	13,640
Big Creek	16	12	0	4	1,575
Bloomer	13	0	0	7	2,532
Boggs	17	14	1	2	11,620
Boyd	6	2	0	4	942
Brandenstein	6	6	0	0	1,287
Burnett	29	21	0	8	31,711
Burnett, NW	25	18	0	7	47,475
Burnett, SW	13	9	0	4	19,407
Catherine, So.	17	13	0	4	9,573
Chance	7	6	0	1	1,015
Chase	37	26	0	11	2,057
Combs	7	6	0	1	389
Couch	5	4	0	1	210
Crowther	10	9	0	1	2,159
Dayton, No.	5	5	0	0	449
Deerhead	7	5	1	1	5,680
Deichman	10	7	0	3	559
Doran	7	4	0	3	1,463
Edwards	15	10	0	5	12,050
El Dorado	85	69	0	16	4,121
Ellis & NW.	5	2	0	3	196
Eureka	6	4	0	2	150
Fairport	10	7	0	3	364
Forest Hill	5	4	0	1	782
Fox-Bush	7	5	0	2	155

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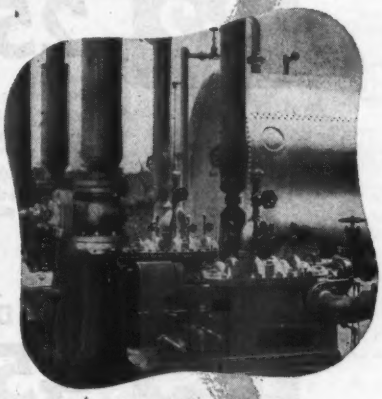

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Multi-Stage Pumps for Boiler Feed Service

High efficiency is inherent in the design of the Peerless Type TUT Pumps. Built for heavy duty service the multi-stage TUT assures dependable operation in boiler feed water service as shown or in pumping other fluids in capacities up to 2500 g.p.m. against heads from 250 to 1000 feet. All types of drives available. Range of horsepower: 20 to 400 h.p.

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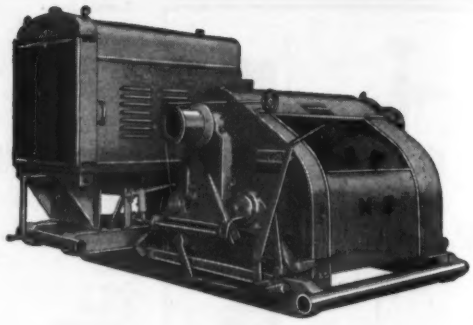
There's a Brewster Rig

N-2

FOR DRILLING
2500'

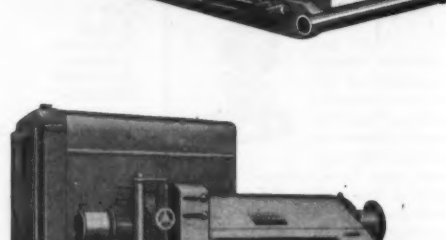
The newest addition to the Brewster line. A small compact drawworks for drilling to 2500' with 4½" pipe, or servicing wells to 6000'. Transmission has five speeds forward and one reverse. Big, powerful 6" x 36" brakes.



N-4

FOR DRILLING
4500'

A small rig with big rig features. Unitized on single skid; has air-operated controls with centralized control panel. Twin Disc torque converter automatically supplies maximum power with minimum engine effort.

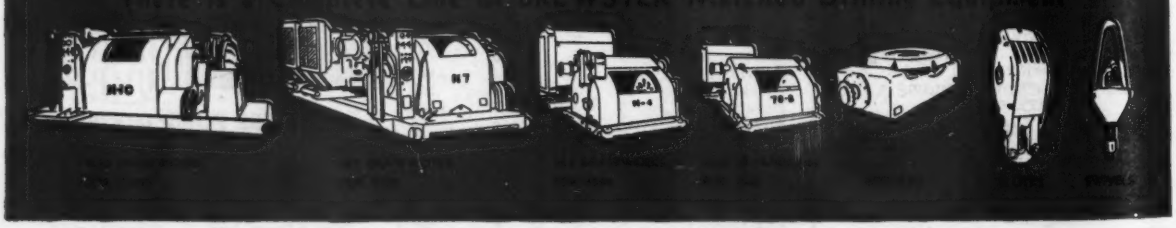


7500'

N-10

FOR DRILLING
10,000'

The Brewster N-10 is the perfect rig for deep well drilling. Completely air-controlled; centralized control panel; easily portable on single skid. For drilling to 10,000' with 4½" pipe. 750 H. P. four speed transmission.



Field—	Comp.	Oil	Gas	Dry	Prod.
Frog Hollow & E.	8	2	0	6	42
Georob	11	8	0	3	7,714
Gorham	10	7	0	3	885
Gypsum Creek	8	6	0	2	653
Haferman	5	4	0	1	1,088
Hall-Gurney	41	36	0	5	8,465
Hansen	5	5	0	0	1,993
Herzog	7	3	0	4	1,026
Hickory Creek	9	6	0	3	420
Hugoton	409	0	408	1	0
Irvin	5	5	0	0	820
Kraft-Prusa	66	49	0	17	23,307
Kramer-Stern	9	5	0	4	184
Lamont	9	8	0	1	235
Logan	9	6	0	3	691
Lost Springs	29	18	0	11	827
Lost Springs, No.	9	4	0	5	165
Morel	18	14	0	4	24,041
Mueller	10	6	0	4	454
Murphy	8	4	0	4	665
Orth	10	8	0	2	610
Paden	18	16	0	2	4,985
Paradise Creek	26	24	0	2	39,632
Pawnee Rock & So.	11	8	2	1	425
Perth	9	7	0	2	9,536
Pierce	8	6	0	2	477
Quincy	6	1	0	5	25
Rahn	5	5	0	0	107
Ray	13	9	0	4	1,523
Raymond	6	3	0	3	404
Ritz-Canton	8	2	1	5	45
Rutherford	7	3	0	4	676
Ryan & W.	10	9	0	1	2,374
Salina	10	8	0	2	3,066
Salina, So.	5	5	0	0	635
Sallyards	5	1	0	4	25
Salter	22	19	0	3	880
Sandago	7	4	0	3	1,547
Saundra & SW.	9	6	0	3	1,156
Schoenchen	5	3	0	2	668
Schulte	6	4	0	2	7,069
Shinn	6	5	0	1	130
Silica	45	32	0	13	6,164
Silica, So.	9	6	0	3	3,974
Skinner	23	16	5	2	16,140
Smock-Sluss	7	4	0	3	97
Smyres	7	5	0	2	1,087
Stoltenberg & SW.	37	26	0	11	6,773
Tisdale	10	6	0	4	326
Trapp	109	82	0	27	19,097
Virgil	11	9	0	2	217
Virgil, No.	15	10	0	5	288
Vohs	5	3	0	2	731
Voshell	5	2	0	3	548
Walters	10	6	0	4	1,293
Webster & NW.	15	14	0	1	18,299
Welch	13	12	0	1	931
Wellington	26	23	0	3	1,488
Wherry & No.	20	10	0	10	650
Winterscheid	5	3	0	2	90
Miscellaneous	401	168	18	215	59,873
Total	2,283	1,251	437	*594	536,796

*Includes 27 service wells.

KANSAS

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Barber	11	0	0	11	55,311
Barton	24	4	1	19	84,434
Butler	36	6	1	29	102,977
Cowley	24	4	0	20	74,322
Ellis	28	5	0	23	152,394
Ellsworth	3	1	0	2	10,056
Graham	22	1	0	21	84,708
Greenwood	9	0	0	9	19,735
Kingman	8	1	0	7	36,993
Lyon	4	1	0	3	7,983
Marion	18	4	0	14	50,505
McPherson	11	2	1	8	33,123
Meade	4	0	1	3	26,505
Pawnee	11	2	2	7	43,465
Phillips	5	0	0	5	18,101
Pratt	10	0	0	10	46,197
Reno	4	0	0	4	16,784
Rice	14	2	3	9	47,015
Rooks	48	6	0	42	174,187
Rush	16	3	0	13	61,235
Russell	5	0	0	5	16,540
Saline	7	0	0	7	23,086
Sedgwick	11	2	0	9	38,691
Sheridan	3	0	0	3	11,758
Stafford	25	5	1	19	96,804
Sumner	8	0	0	8	31,725
Trego	6	2	0	4	24,607
Woodson	7	0	1	6	9,663
Miscellaneous	30	1	4	25	73,565
Total	412	52	15	345	1,472,469

NEBRASKA-MISSOURI-IOWA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	0	0	1	890
February	1	0	0	1	1,180
March	1	0	0	1	250
July	1	0	0	1	6,788
October	1	0	0	1	1,601
December	2	0	0	2	1,116
Total	7	0	0	7	11,825

WEST TEXAS

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	21	1	1	19	135,487
February	18	4	0	14	93,632
March	8	1	1	6	40,873
April	14	4	0	10	64,504
May	17	1	0	16	75,751
June	15	3	1	11	95,032
July	15	2	0	13	101,406
August	22	4	0	18	134,750
September	21	7	0	14	119,451
October	18	6	0	12	93,736
November	22	9	1	12	104,300
December	22	5	0	17	126,241
Total	213	47	4	162	1,184,163

WEST TEXAS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	199	184	2	13	945,725
February	135	124	2	9	696,113
March	127	116	1	10	589,040
April	136	127	2	7	660,741
May	186	167	6	13	864,476
June	163	152	1	10	745,645
July	207	196	0	11	1,014,651
August	232	215	1	16	970,366
September	168	161	1	6	682,906
October	169	158	0	11	817,714
November	188	182	0	6	845,220
December	164	146	1	17	792,278
Total	2,074	1,928	17	129	9,624,875

WEST TEXAS

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	196	165	3	28	958,812
February	153	128	2	23	788,745
March	135	117	2	16	629,913
April	150	131	2	17	725,245
May	195	163	6	26	891,427
June	173	150	2	21	815,177
July	218	193	0	25	1,085,917
August	298	261	1	36	1,307,632
September	181	160	1	20	772,777
October	188	164	1	23	944,450
November	214	192	0	22	970,424
December	186	151	1	34	918,519
Total	2,287	1,975	21	291	10,809,038

WEST TEXAS

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Adair	30	30	0	0	147,545
Andector	26	26	0	0	209,347
Barnhart	7	6	0	1	64,194
Block 31	7	7	0	0	62,433
Block 12	14	13	0	1	101,464
Block 12 Devonian	2	1	0	1	17,390
Cedar Lake	8	7	0	1	35,948
Childress	2	0	0	2	18,458
Clara Couch	17	14	1	2	31,471
Coleman Ranch	28	24	0	4	81,153
Couch	8	7	0	1	11,698
North Cowden Deep	16	15	0	1	82,827
South Cowden	9	9	0	0	38,880
Dollar Hide	20	20	0	0	168,493
Doss	14	14	0	0	99,907
Fort Stockton	8	7	0	1	23,612
Foster	24	23	0	1	105,419
Fuhrman-Mascho	24	24	0	0	110,884
Fuhrman, West	4	4	0	0	18,117
Fullerton	88	87	0	1	634,418
Fullerton Devonian	19	19	0	0	166,535
Fullerton Ellenburger	4	4	0	0	38,880
Garza	68	64	0	4	208,104
Goldsmith	23	23	0	0	109,220
Goldsmith Clearfork	18	18	0	0	113,676
North Goldsmith	6	4	0	2	47,895
Howard-Glasscock	48	34	0	14	113,383
Iatan-East Howard	19	18	0	1	55,326
Jameson	11	10	0	1	72,467
Jordan	5	5	0	0	23,692
Keystone Colby	29	29	0	0	106,915
Keystone Devonian	20	19	0	1	163,849
Keystone Ellenburger	30	30	0	0	296,417
Keystone Holt	17	17	0	0	84,463
Keystone 5,000	2	2	0	0	10,037
Keystone Silurian	27	27	0	0	220,007
Levelland	140	140	0	0	676,461
Mabee	9	9	0	0	42,286
Magnolia-Sealy	6	5	0	1	17,171
Martin Ellenburger	10	10	0	0	89,454
McCamey	27	27	0	0	65,762
McElroy	55	54	0	1	167,971
Means	26	25	1	0	116,475
Midway Lane	2	2	0	0	15,265
Monahans, Clearfork	12	12	0	0	60,475
Monahans Ellenburger	2	2	0	0	21,032
North Monahans	5	0	0	5	24,745
Nelson	4	2	0	2	42,345
Olson	5	5	0	0	13,882
Page	12	12	0	0	69,910
Pecos Valley, HG	16	12	0	4	25,621
Robertson	5	5	0	0	31,984
Russell	14	13	0	1	106,595
Sand Hills, McKnight	7	7	0	0	23,940
Sand Hills, Tubb	24	23	0	1	112,460
Shafter Lake	5	1	4	0	16,871
Shannon	22	17	0	5	56,829
Sharon Ridge	128	124	0	4	226,851
Shipley	12	12	0	0	30,240
Slaughter	128	127	0	1	607,141
Three Bar	4	4	0	0	33,048
Toborg	135	120	0	15	54,415
Todd Deep	16	13	0	3	103,436
Turner	4	4	0	0	17,852
TXL Clearfork	9	9	0	0	66,106
TXL Devonian	31	29	0	2	261,476
TXL Ellenburger	63	61	0	2	520,050
TXL Silurian	2	2	0	0	16,784
Union	3	3	0	0	22,198
Waddell	21	21	0	0	73,506
Ward-Estes, North	31	31	0	0	92,475
Wasson	17	17	0	0	89,210
Wasson 66 & 72	6	6	0	0	39,165
Welch	44	43	0	1	227,513
Wheeler Devonian	9	8	0	1	84,318
Wheeler Ellenburger	13	11	0	2	135,966
White & Baker	17	13	2	2	35,751
World-Powell	15	14	0	1	39,870
Yates	6	5	0	1	9,381
Miscellaneous	250	207	9	34	1,045,906
Total	2,074	1,928	17	129	9,624,875

WEST TEXAS

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Andrews	21	5	0	16	160,005
Borden	3	0	0	3	13,038
Cochran	4	0	0	4	24,138
Concho	6	0	0	6	20,824
Crane	8	2	0	6	61,149
Crockett	27	17	2	8	124,331
Crosby	2	0	0	2	14,277
Dawson	8	0	0	8	41,173
Ector	10	2	0	8	88,548
El Paso	2	0	0	2	2,648
Fisher	2	0	0	2	9,692
Gaines	11	3	1	7	67,276

County—	Comp.	Oil	Gas	Dry	Footage
Garza	5	0	0	5	17,444
Glasscock	2	0	0	2	6,566
Hockley	14	5	0	9	66,091
Howard	9	0	0	9	37,546
Lubbock	2	0	0	2	18,971
Lynn	2	0	0	2	17,998
Midland	5	1	0	4	39,771
Mitchell	8	2	0	6	37,601
Pecos	14	1	0	13	55,770
Regan	5	2	0	3	29,277
Reeves	4	2	0	2	18,541
Runnels	3	1	0	2	12,513
Schleicher	3	0	0	3	19,104
Scurry	8	0	1	7	39,299
Tom Green	4	0	0	4	15,616
Upton	3	1	0	2	6,715
Ward	3	1	0	2	17,460
Winkler	6	1	0	3	54,639
Yoakum	2	0	0	2	10,879
Miscellaneous	7	1	0	6	35,063
Total	213	47	4	162	1,184,163

TEXAS PANHANDLE

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	1	0	0	6,992
February	0	0	0	0	0
March	0	0	0	0	0
April	1	0	1	0	6,306
May	2	0	0	2	7,420
June	0	0	0	0	0
July	2	0	0	2	12,653
August	5	0	0	5	31,983
September	1	0	0	1	9,974
October	2	0	1	1	5,458
November	0	0	0	0	0
December	1	0	0	1	9,327
Total	15	1	2	12	90,113

TEXAS PANHANDLE

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	47	13	31	3	141,954
February	36	20	13	3	119,227
March	39	13	25	1	123,435
April	20	15	4	1	71,998
May	35	26	7	2	107,162
June	29	18	8	3	92,329
July	45	17	23	5	134,518
August	42	30	7	5	134,245
September	48	27	18	3	148,129
October	41	23	16	2	125,779
November	40	22	15	3	125,633
December	53	37	13	3	178,124
Total	475	261	180	34	1,502,533

TEXAS PANHANDLE

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	48	14	31	3	148,946
February	36	20	13	3	119,227
March	39	13	25	1	123,435
April	21	15	5	1	78,304
May	37	26	7	4	114,582
June	29	18	8	3	92,329
July	47	17	23	7	147,171
August	47	30	7	10	166,228
September	49	27	18	4	158,103
October	43	23	17	3	131,237
November	40	22	15	3	125,633
December	54	37	13	4	187,451
Total	490	262	182	46	1,592,646

TEXAS PANHANDLE

Development Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Carson	35	9	23	3	103,166
Collingsworth	1	0	0	1	2,410
Curry	1	0	0	1	3,745
Gray	90	59	28	3	265,663
Hale (Irish)	17	17	0	0	94,716
Hale (Petersburg)	4	0	0	4	30,489
Hansford	5	0	5	0	15,413
Harding	1	0	1	0	910
Hartley	1	0	1	0	3,685
Hutchinson	187	159	17	11	583,170
Moore	22	0	20	2	77,317
Potter	3	0	3	0	7,422
Sherman	73	0	70	3	229,659
Wheeler	35	17	12	6	84,768
Total	475	261	180	34	1,502,533

TEXAS PANHANDLE

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Collingsworth	3	0	0	3	9,012
Floyd	1	0	0	1	7,745
Gray	1	0	1	0	2,936
Hale	5	1	0	4	38,890
Lamb	2	0	0	2	15,835
Randall	1	0	0	1	6,149
Sherman	2	0	1	1	9,546
Total	15	1	2	12	90,113

SOUTHEAST NEW MEXICO

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	5	1	0	4	27,865
February	5	1	0	4	22,601
March	3	2	0	1	12,149
April	3	1	0	2	10,632
May	1	0	0	1	4,202
June	5	0	0	5	21,559
July	2	0	0	2	15,428
August	3	0	0	3	15,251
September	5	1	0	4	20,326
October	3	0	0	3	23,579
November	5	0	0	5	9,421
December	1	0	0	1	4,184
Total	41	6	0	35	187,150

SOUTHEAST NEW MEXICO

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	43	36	2	5	204,819
February	36	30	3	3	183,481
March	41	34	6	1	187,052
April	32	29	2	1	156,172
May	43	35	4	4	210,525
June	39	33	2	4	166,858
July	45	40	3	2	201,745
August	51	41	3	7	210,303
September	38	35	1	2	173,707
October	37	27	7	3	167,999
November	34	28	5	1	138,693
December	55	47	2	6	257,393
Total	494	415	40	39	2,258,747

SOUTHEAST NEW MEXICO

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	48	37	2	9	232,684
February	41	31	3	7	206,082
March	44	36	6	2	199,201
April	35	30	2	3	166,804
May	44	35	4	5	214,727
June	44	33	2	9	188,417
July	47	40	3	4	217,173
August	54	41	3	10	225,554
September	43	36	1	6	194,033
October	40	27	7	6	191,578
November	39	28	5	6	148,114
December	56	47	2	7	261,577
Total	535	421	40	74	2,445,944

SOUTHEAST NEW MEXICO

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Bowers	28	27	0	1	89,835
Brunson	32	32	0	0	253,743
Caprock	34	34	0	0	107,045
Cass	2	1	0	1	18,585
Cooper-Jal	22	8	11	3	74,340
Drinkard	127	126	0	1	923,707
Eaves	3	2	1	0	9,591
Empire	16	15	0	1	23,025
Fren	10	10	0	0	20,962
Grayburg-Jackson	25	22	0	3	83,898
Langlie-Mattix	24	15	9	0	82,277
Loco-Hills	11	10	0	1	32,543
Lovington & W.	3	3	0	0	47,718
Paddock	31	31	0	0	174,390
Russell	9	9	0	0	7,628
South Eunice	12	3	9	0	50,593
Square Lake	3	2	0	1	10,531
West Eunice	4	4	0	0	14,843
West Roberts	7	6	0	1	28,967
Miscellaneous	91	55	10	26	204,526
Total	494	415	40	39	2,258,747

SOUTHEAST NEW MEXICO

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Chaves	10	1	0	9	42,941
Curry	1	0	0	1	3,745
Eddy	10	2	0	8	28,897
Lea	19	3	0	16	106,393
Roosevelt	1	0	0	1	5,221
Total	41	6	0	35	187,197

EAST TEXAS

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	46	25	6	15	231,031
February	42	15	6	21	212,970
March	29	14	6	9	169,955
April	44	19	4	21	237,271
May	48	29	7	12	276,464
June	34	18	4	12	192,868
July	57	35	8	14	311,027
August	52	21	9	22	266,170
September	53	33	7	13	292,028
October	55	27	7	21	258,783
November	63	33	6	24	328,123
December	74	44	7	23	293,249
Total	597	313	77	*207	3,069,939

*Includes 1 service well.

EAST TEXAS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	36	24	6	6	117,506
February	28	15	6	7	150,888
March	22	14	5	3	134,410
April	34	18	4	12	171,657
May	38	28	6	4	215,042
June	26	17	3	6	147,481
July	48	35	8	5	276,030
August	40	19	9	12	212,605
September	37	29	6	2	199,685
October	42	26	7	9	214,129
November	49	33	6	10	260,947
December	60	43	7	10	233,941
Total	460	301	73	86	2,394,323

EAST TEXAS

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	10	1	0	9	53,523
February	14	0	0	14	62,082
March	7	0	1	6	35,545
April	10	1	0	9	65,614
May	10	1	1	8	61,422
June	8	1	1	6	45,387
July	9	0	0	9	34,997
August	12	2	0	10	53,565
September	16	4	1	11	92,343
October	13	1	0	12	44,654
November	14	0	0	14	67,176
December	14	1	0	13	59,308
Total	137	12	4	121	675,616

EAST TEXAS

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Bethany	10	0	10	0	62,700
Carthage	46	2	38	6	295,027
Grapeland	4	4	0	0	23,937
Hawkins	24	18	0	6	133,860
Henderson	9	7	0	2	67,446
Manziel	14	13	0	1	66,274
Marion County Shallow	41	24	0	17	102,806
Merigale	22	22	0	0	108,258
Navarro Crossing	3	1	2	0	17,635
New Hope	2	2	0	0	16,229
Norman Paul	37	35	0	2	180,126
Opelika	18	18	0	0	112,663
Pickton	7	7	0	0	55,458
Quitman	30	27	0	3	151,480
Sand Flat	19	17	0	2	140,275
Talco	17	14	0	3	73,592
Tri-Cities	10	2	7	1	80,149
Waskom	14	4	9	1	87,150
William Wise	5	3	0	2	25,732
Miscellaneous	128	81	7	40	593,436
Total	460	301	73	86	2,394,323

EAST TEXAS

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Anderson	8	1	2	5	39,868
Angelina	2	0	0	2	8,490
Bowie	3	0	0	3	13,663
Cass	2	0	0	2	10,412
Cherokee	7	0	1	6	43,342
Collin	3	0	0	3	21,760
Denton	9	2	0	7	22,279

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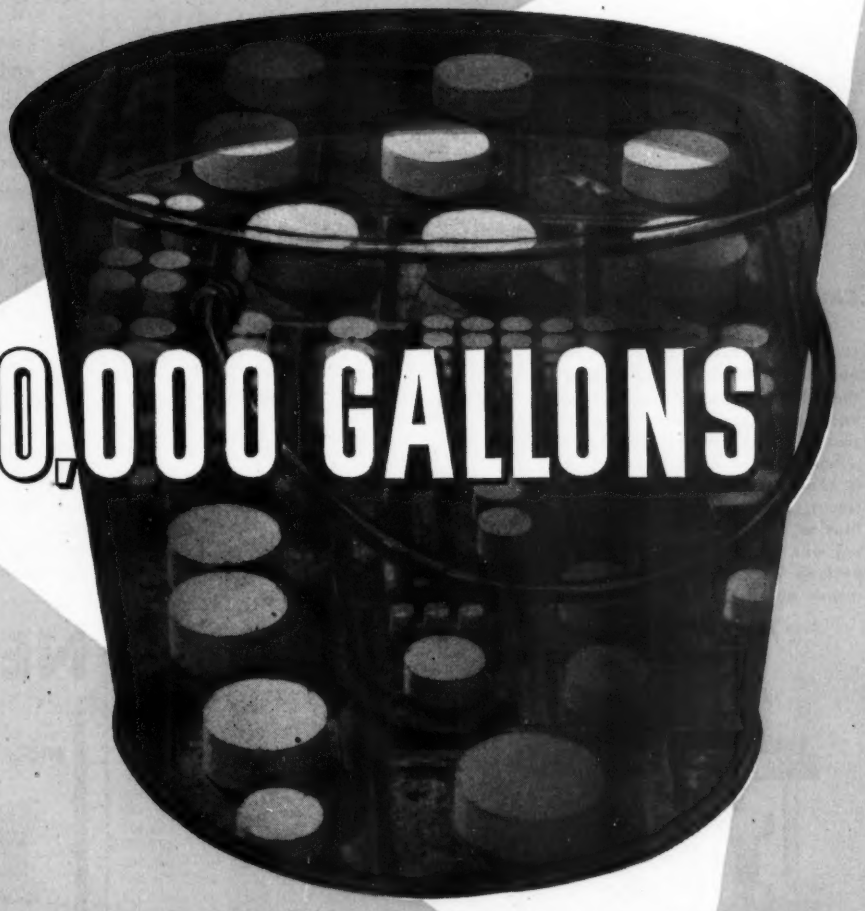

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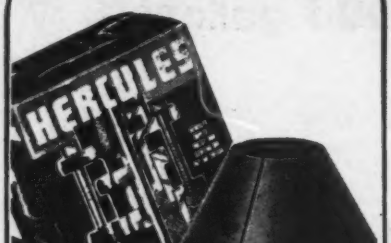

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County—	Comp.	Oil	Gas	Dry	Footage
Fannin	2	0	0	2	5,708
Franklin	1	0	0	1	7,455
Freestone	3	1	0	2	16,778
Grayson	7	2	0	5	34,327
Gregg	1	0	0	1	3,750
Harrison	4	1	0	3	27,305
Henderson	4	0	0	4	18,305
Hill	2	0	0	2	4,375
Hopkins	2	1	0	1	10,072
Houston	8	1	0	7	57,841
Hunt	3	0	0	3	10,895
Kaufman	2	0	0	2	12,006
Lamar	1	0	0	1	1,755
Leon	4	3	0	1	28,916
Limestone	5	0	0	5	32,730
McLennan	2	0	0	2	1,828
Madison	3	0	0	3	9,169
Marion	1	0	0	1	3,008
Milam	2	0	0	2	2,202
Nacogdoches	1	0	0	1	775
Navarro	7	0	1	6	21,310
Panola	2	0	0	2	13,525
Red River	1	0	0	1	2,130
Robertson	4	0	0	4	14,007
Rusk	4	0	0	4	26,485
Sabine	1	0	0	1	9,440
San Augustine	1	0	0	1	8,978
Shelby	3	0	0	3	16,788
Smith	3	0	0	3	21,292
Titus	1	0	0	1	5,493
Van Zandt	10	0	0	10	35,716
Walker	1	0	0	1	5,003
Wood	7	0	0	7	46,427
Total	137	12	4	121	675,616

NORTH CENTRAL TEXAS
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	32	8	0	24	128,814
February	23	6	0	17	91,177
March	29	6	0	23	79,930
April	20	3	0	17	70,377
May	20	3	1	16	67,539
June	23	4	0	19	59,487
July	38	2	0	36	126,417
August	36	2	0	34	105,706
September	17	1	0	16	41,719
October	26	1	0	25	67,863
November	31	5	0	26	101,244
December	35	7	0	28	67,420
Total	330	48	1	281	1,007,695

NORTH CENTRAL TEXAS
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	157	121	1	35	464,939
February	117	76	1	40	331,835
March	118	80	1	37	343,792
April	140	91	1	48	355,409
May	152	109	1	42	487,507
June	143	93	0	50	466,282
July	236	140	1	95	598,969
August	194	120	4	70	477,255
September	133	74	1	58	414,671
October	115	78	1	36	314,629
November	107	73	2	32	300,899
December	96	56	1	39	293,817
Total	1,708	1,111	15	*582	4,850,004

*Includes 14 service wells.

NORTH CENTRAL TEXAS
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	189	129	1	59	593,753
February	140	82	1	57	423,012
March	147	86	1	60	423,722
April	160	94	1	65	425,786
May	172	112	2	58	555,046
June	166	97	0	69	525,769
July	274	142	1	131	725,386
August	230	122	4	104	582,961
September	150	75	1	74	456,390
October	141	79	1	61	382,494
November	138	78	2	58	402,143
December	131	61	1	67	361,237
Total	2,038	1,159	16	*863	5,857,699

*Includes 14 service wells.

NORTH CENTRAL TEXAS
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Archer County					
Regular	51	37	0	14	90,345
Bateman Ranch	13	13	0	0	67,807

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THE WELSBACH CORPORATION
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1500 Walnut St. Philadelphia 2, Pa.

Field—	Comp.	Oil	Gas	Dry	Footage
Benson	42	33	0	9	79,416
Bowers	3	2	0	1	11,433
Bryson & E.	13	7	2	4	62,520
Bulcher	7	4	0	3	16,212
Cooper & Steed	16	12	0	4	66,849
Daume	6	4	0	2	89,312
Dennis	6	4	0	2	13,213
Electra	91	60	0	31	149,582
Ellis	15	13	0	2	65,918
Fargo	29	27	0	2	144,518
Garvey	5	4	0	1	21,671
Hapgood	7	3	0	4	44,119
Hildreth	11	9	0	2	63,430
Hoefle	13	12	0	1	58,190
Holbert Caddo	3	2	0	1	9,207
Holliday	23	16	0	7	71,184
Hull-Silk-Skies	8	5	0	3	25,921
Jackson	7	5	0	2	10,181
James	8	6	0	2	37,652
Jermyn	4	2	0	2	17,841
Joy	19	13	0	6	86,845
Kendall	31	21	6	4	95,511
Lewis-Stuart	10	10	0	0	64,899
Loving	8	5	0	3	25,032
Murray	8	5	0	3	48,972
National-Ellenburger	4	4	0	0	18,376
New York	3	3	0	0	37,126
Nocona	18	15	0	3	15,922
Oldham	4	2	0	2	5,546
Ringgold	6	6	0	0	33,361
Rogers & Rogers	5	5	0	0	19,541
Ross	7	6	0	1	55,400
St. Jo	9	3	0	6	83,321
Sivels Bend	25	24	0	1	256,150
Stoneburg	3	3	0	0	18,866
Walnut Bend	33	31	0	2	160,327
West	9	9	0	0	38,451
Wichita	28	20	0	8	49,107
Wilson	28	21	0	7	79,726
Woodbine	34	28	0	6	109,575
Young	32	19	1	12	70,918
Miscellaneous	1,003	578	6	419	2,260,511
Total	1,708	1,111	15	582	4,850,004

NORTH CENTRAL TEXAS
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Archer	102	17	0	85	238,980
Baylor	10	0	0	10	24,997
Childress	1	0	0	1	8,497
Clay	25	6	0	19	97,715
Cooke	58	4	0	54	151,462
Cottle	3	0	0	3	16,255
Denton	1	0	0	1	2,525
Foard	3	1	0	2	14,235
Hardeman	2	0	0	2	7,426
Jack	16	3	0	13	78,133
King	4	0	0	4	21,108
Knox	4	0	0	4	12,974
Montague	20	3	0	17	95,116
Wichita	29	2	0	27	63,757
Wilbarger	16	1	1	14	68,494
Wise	1	0	0	1	1,060
Young	35	11	0	24	104,961
Total	330	48	1	281	1,007,695

WEST CENTRAL TEXAS
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	30	2	1	27	94,909
February	29	8	2	19	94,323
March	12	3	1	8	43,818
April	15	3	0	12	52,767
May	31	5	2	24	96,607
June	16	3	0	13	38,243
July	19	2	0	17	64,841
August	25	4	0	21	65,132
September	18	2	1	15	60,624
October	31	5	2	24	82,133
November	29	6	0	23	75,805
December	21	0	2	19	64,185
Total	276	43	11	222	833,387

WEST CENTRAL TEXAS
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	41	26	1	14	107,284
February	38	18	1	19	127,397
March	40	24	1	15	107,191
April	39	25	2	12	113,522
May	47	29	4	14	160,950
June	57	31	1	25	171,854

All YOU WANT TO KNOW

in this NEW 108 page CATALOG of R&S

ELECTRICAL PRODUCTS for HAZARDOUS LOCATIONS

PRODUCTS FEATURED
(Including many new items and combinations):-

Lighting Fixtures and Accessories, Combinations, Boxes and Covers, Fittings, Switches, Push Buttons and Pilot Stations; Manual, Automatic and Combination Starters; Circuit Breakers, Panel-boards, Custom-built Control and Power Panels, Receptacles, Plugs, and Connectors, Unilarm (unit alarm system), etc.

IT'S more than a complete catalog of R&S Products for hazardous locations. You'll also find it a helpful HANDBOOK for all information you want to know about explosion-proof electrical installations. Contains schematic illustrations of typical applicational layouts in accordance with National Electrical Codes. Formulas and engineering data are given for quick, convenient reference and ordering. Illustrates wiring diagrams with mounting locations and outlets, dimensions; gives weights, prices, and all pertinent information regarding products listed. Also includes complete UNILARM section.

You'll find this catalog invaluable as a time saving, quick-reference medium for your present or future explosion-proof product requirements. A copy will be mailed to you gladly WHEN REQUESTED ON YOUR BUSINESS LETTERHEAD. Ask for Catalog H47-13.

Sold through Electrical Jobbers
Sales Representatives in Principal Cities

65

SINCE 1902

RUSSELL & STOLL COMPANY, INC.
Precision-Built Electrical Equipment
125 BARCLAY STREET, NEW YORK 7, N. Y.

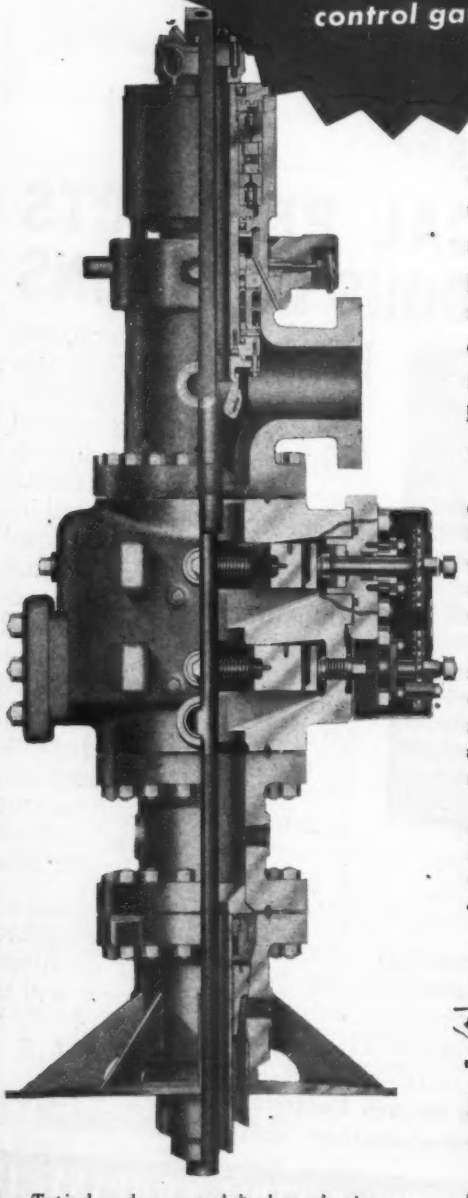
Your point-by-point guide to

Do you know the

10 VITAL FEATURES

to look for in a control gate?

only Shaffer has them all!

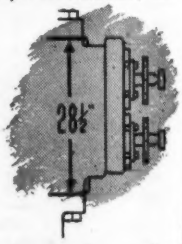


Typical modern control hook-up showing a Shaffer Type 45 Double Cellar Control Gate (center) *with a Shaffer Combination Landing Base Head* (bottom) *and a Shaffer Type 46 Combination Rotating Blow-Out Preventer and Stripper* (top).

WHEN YOU PURCHASE cellar control gate protection, make certain you get *completely modern* control equipment . . . equipment that not only offers the maximum in pressure protection, but also the maximum in space-saving compactness, in wide-range adaptability, in positive dependability, in maximum ease and speed of changing rams, and in still other important features that go to make up *complete* control gate efficiency. Before you buy *any* control gate equipment, make a point-by-point check against the 10 Shaffer advantages outlined here. *Only Shaffer — pioneer of modern control gate equipment — gives such complete superiority on every vital feature!*

1 Check ☑ COMPACTNESS!

Space-saving compactness is vital. It means shallower cellars without sacrificing on cellar equipment — *and shallow cellars reduce installation costs, are easier and safer to maintain, cut costs in many ways throughout the life of the well.*



No other gate equals Shaffer compactness. *Two* single Shaffer Gates usually require the space of *one* ordinary drilling valve . . . and the Shaffer Double Gate *(two* separate ram assemblies unitized into *one* body) is so amazingly compact that — even in the largest sizes — it requires *less than 29"* in vertical height!

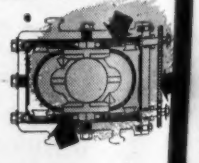
2 Check ☑ POWER ADAPTABILITY!

A control gate that can be operated with virtually any *type of power can be moved from rig-to-rig and field-to-field with maximum interchangeability and adaptability.*

Again Shaffer is unequalled. Shaffer Gates can be operated with virtually *any* type of power — air, hydraulic, electric or steam drives that are compact, foolproof and interchangeable. In addition, they have the vital protection of easy *manual* operation in emergencies.

3 Check ☑ POSITIVE DEPENDABILITY!

A control gate is emergency equipment. It must *operate at all times without risk of failure.*



Shaffer dependability is unsurpassed. Shaffer Gates provide the proven dependability of foolproof *mechanical* drive. Their synchronized stainless steel operating screws are positive in action and hold the rams in absolute alignment. There is no risk of binding, no uncertainties in operation.

Month—	Comp.	Oil	Gas	Dry	Footage
July	88	50	1	37	239,541
August	67	27	3	37	239,774
September	49	24	2	23	145,596
October	43	23	4	16	136,375
November	50	19	5	26	160,606
December	42	24	2	16	143,406
Total	601	320	27	*254	1,853,498

*Includes 3 service wells.

WEST CENTRAL TEXAS

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	71	28	2	41	202,193
February	67	26	3	38	221,720
March	52	27	2	23	151,009
April	54	28	2	24	166,289
May	78	34	6	38	257,557
June	73	34	1	38	210,097
July	107	52	1	54	304,382
August	92	31	3	58	304,906
September	67	26	3	38	206,220
October	74	28	6	40	218,508
November	79	25	5	49	236,413
December	63	24	4	35	207,591
Total	877	363	38	*476	2,686,885

*Includes 3 service wells.

WEST CENTRAL TEXAS

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Chapman	7	5	0	2	25,182
Eastland	2	0	2	0	7,263
Coleman County Regular	16	12	1	3	48,347
Cook	25	5	0	20	60,683
Eastland	8	3	3	2	60,249
Eskota	16	15	0	1	73,568
Jones	32	17	0	15	70,335
Lawson	9	3	0	6	30,950
Lee-Ray	21	14	4	3	79,893
Lewis-Steffins	19	15	0	4	38,851
Loving	3	3	0	0	12,092
Manning-O'Connor	12	12	0	0	34,369
Murphree	10	10	0	0	28,608
Noodle Creek	5	3	0	2	20,002
Parrott	51	31	2	18	196,204
Reddin	23	18	0	5	60,723
Stephens	20	14	0	6	69,166
Miscellaneous	322	140	15	167	937,013
Total	601	320	27	254	1,853,498

WEST CENTRAL TEXAS

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Brown	21	2	3	16	46,129
Callahan	31	1	2	28	58,597
Coleman	12	4	0	8	36,502
Comanche	4	0	1	3	8,114
Eastland	9	0	1	8	29,794
Erath	2	0	0	2	10,496
Fisher	9	2	0	7	46,562
Hamilton	1	0	1	0	3,026
Haskell	20	2	0	18	85,184
Jones	43	7	0	36	139,192
McCulloch	2	0	0	2	2,075
Nolan	1	0	0	1	6,804
Palo Pinto	7	0	3	4	14,068
Parker	2	0	0	2	3,847
San Saba	1	0	0	1	755
Shackelford	31	7	0	24	97,583
Stephens	28	7	0	21	111,869
Stonewall	4	0	0	4	21,916
Taylor	25	5	0	20	76,630
Throckmorton	23	6	0	17	101,365
Total	276	43	11	222	833,387

SOUTHWEST TEXAS

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	24	5	1	18	104,903
February	28	5	0	23	108,475
March	52	15	1	36	254,208
April	38	7	3	28	181,439
May	45	12	2	31	229,762
June	37	6	4	27	166,238
July	40	7	5	28	192,705
August	46	14	2	30	183,091
September	34	9	1	24	158,752
October	49	9	1	39	229,674
November	67	8	1	58	269,052
December	47	7	1	39	227,965
Total	507	104	22	381	2,306,264

SOUTHWEST TEXAS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	67	52	4	11	346,619
February	66	51	7	8	338,343
March	104	79	8	17	564,034
April	80	56	5	19	438,087
May	95	74	6	15	513,532
June	70	53	3	14	355,383
July	102	77	6	19	501,314
August	93	57	11	25	471,343
September	73	50	5	18	353,346
October	85	61	4	20	424,101
November	96	61	6	29	500,437
December	75	58	5	12	341,866
Total	1,006	729	70	207	5,147,405

SOUTHWEST TEXAS

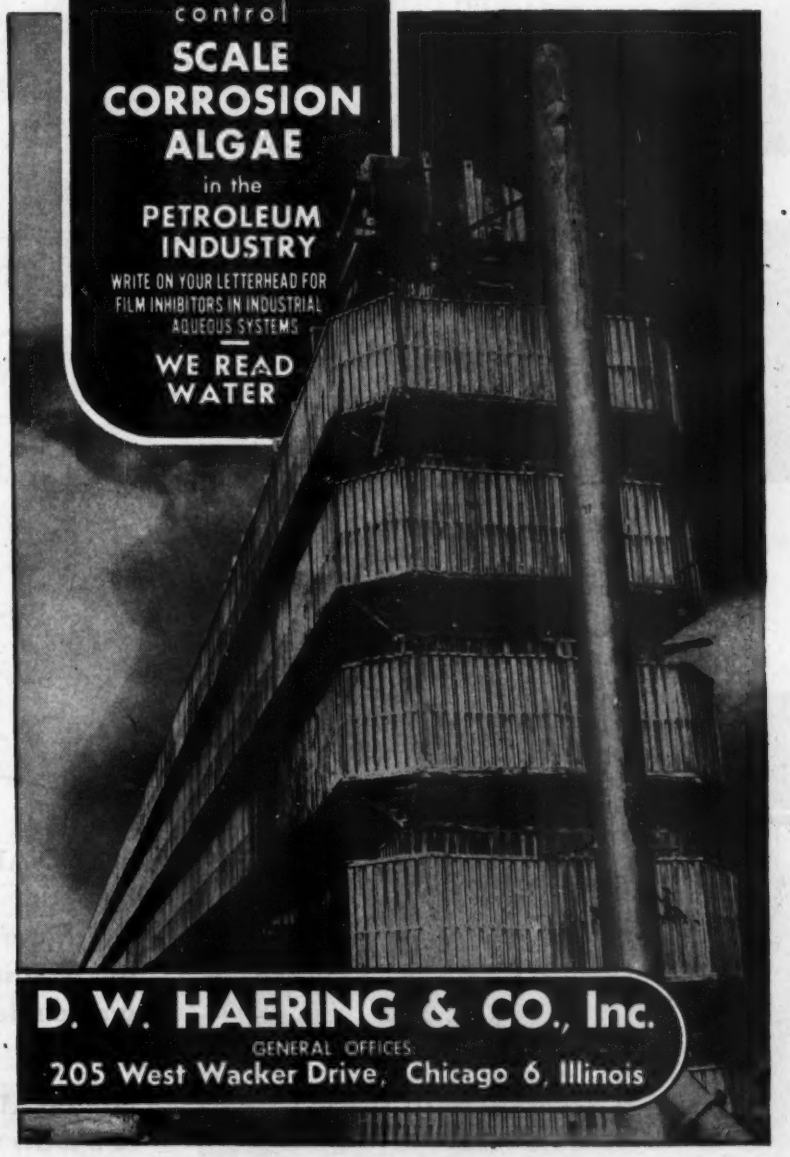
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	91	57	5	29	451,522
February	94	56	7	31	446,818
March	156	94	9	53	817,242
April	119	64	8	47	619,526
May	139	85	8	46	743,294
June	107	59	7	41	521,621
July	142	84	11	47	694,019
August	139	71	13	55	654,434
September	107	59	6	42	512,098
October	134	70	5	59	653,775
November	163	69	7	87	769,489
December	122	65	6	51	569,831
Total	1,513	833	92	588	7,453,669

SOUTHWEST TEXAS

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod
Agua Dulce (Includes Brayton)	30	25	2	3	2,908
Agua Prieta	6	2	1	3	115
Alta Mesa	4	3	0	1	340
Aviator	6	1	0	5	51



"CARDWELL'S" NEW "TOP-TO-BOTTOM"

WESTERN UNION

1201

SYMBOLS
DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
= Ship Radiogram

JOSEPH L. EGAN
PRESIDENT

CLASS OF SERVICE
This is a full-rate Telegram or Cable-gram, unless its de-ferred character is in-dicated by a suitable symbol above or pre-ceding the address.

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

CARDWELL MFG. CO., INC.
WICHITA, KANSAS

MOVED CARDWELL RIG TO NEW LOCATION AND STARTED SPUDDER IN 5½ HOURS. MOVING BILL 179 DOLLARS. MOVING COMPARABLE STANDARD RIG TWO WEEKS AND 700 DOLLARS. TIME ON WELL USING GREEN CREW AND WITH FOUR NASTY FISHING JOBS AND BAD CASING WAS WEEK LESS THAN 4300-FOOT LOCAL AVERAGE. RAN 3900 FEET OF 5½-INCH PIPE IN THREE HOURS WITHOUT CASING CREW. THIS IS FIVE HOURS BETTER THAN AVERAGE WITH CASING CREW. ACHIEVED RECORD BY STABBING AND TONGING PIPE LIKE ROTARY. ALL FOREGOING ACCOMPLISHED WITHOUT ATTEMPTED RECORD AS WE WERE TRAINING CREWS. COSTS NOT COMPUTED BUT CERTAIN TO BE THIRTY TO FORTY PERCENT UNDER LOCAL AVERAGE DUE ELIMINATION OF RIG BUILDERS, MAST HAULING, CASING CREWS AND SPEED IN HANDLING TOOLS.

D. O. LYNN

BEASLEY AND LYNN

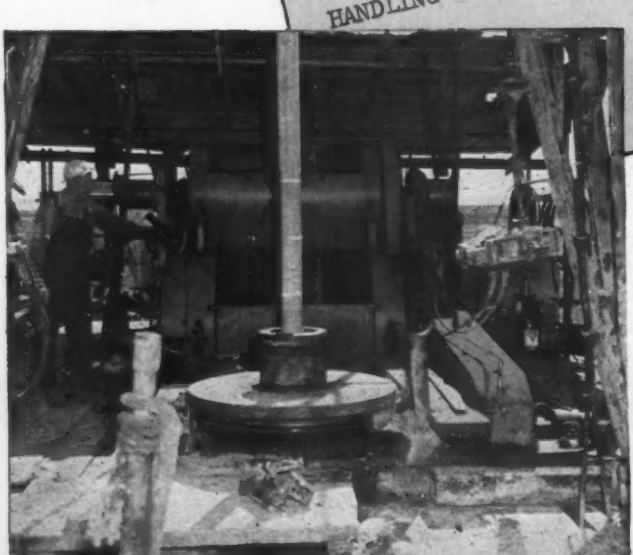


PHOTO AT RIGHT: Note the rear guy lines are anchored to subframe in which are mounted the water tanks for ballast, making it necessary to provide deadmen for front guy lines only.

PHOTO AT LEFT: Rig can be converted to a draw works in the field for rotary operations.

Field—	Comp.	Oil	Gas	Dry	Prod.
Benavides	2	1	0	1	164
Bentonville	2	0	1	1	0
Bishop	4	3	0	1	363
Borregas	18	16	2	0	3,013
Boyle	10	8	0	2	532
Calliham	3	3	0	0	22
Cam	21	18	0	3	1,504
Cameron	3	2	0	1	390
Chapman-Abbott	2	0	0	2	0
Charlotte	61	59	1	1	4,516
Chicon Lake	4	1	0	3	5
Chittim	2	0	0	2	0
Conoco-Driscoll	2	1	0	1	66
Darst Creek	3	2	0	1	73
Dee Davenport	5	4	0	1	440
Del Monte	5	3	1	1	25
Dulup	4	1	0	3	25
East Alta Mesa	1	1	0	0	52
East Charco Redondo	11	7	1	3	400
East Longhorn	10	7	0	3	776
East Peters	2	1	0	1	10
East Taft	7	7	0	0	714
East White Point	16	10	1	5	1,033
Elm Creek	2	2	0	0	7
Encobas	5	0	0	5	0
Fulton Beach	2	2	0	0	351
Garcia	15	12	1	2	1,029
George Farenthold	6	4	0	2	536
Glen	2	1	0	1	6
Green Branch	7	6	0	1	458
Harper	2	2	0	0	29
Hoffman	9	8	0	1	415
Holbein	6	4	0	2	302
Holland (Cortez)	3	0	2	1	0
Holman	10	4	0	6	7
Hughes	25	18	0	7	663
Joliet	6	4	0	2	520
Jourdanton	29	26	2	1	2,029
Kelsey-Deep	35	31	0	4	4,085
Kelsey-South	5	4	0	1	604
Kennard	15	8	0	7	491
Kohler	2	1	1	0	15
Lacy	7	1	3	3	no gage
La Gloria	47	43	1	3	7,788
La Reforma	5	1	2	2	50
Little Alamo	4	1	0	3	77
Los Indios	2	1	1	0	78
Luby	5	5	0	0	394
Luling	14	14	0	0	990
Lytton Springs	4	4	0	0	183
McAllen	3	1	2	0	73
Mariposa	2	1	0	1	no gage
Midway	23	18	3	2	2,166
North Aviator	8	4	0	4	220
North Government Wells	13	11	1	1	256
North Magnolia City	12	7	2	3	815
North Minnie Bock	12	9	0	3	942
North Rincon	7	5	1	1	461
North Sun	12	6	0	6	523
Odem	8	8	0	0	526
Palangana Dome	3	0	0	3	0
Paul Turney	5	3	0	2	3
Pearsall	5	1	4	0	50
Piedras Pintas	25	18	0	7	5,547
Pita	4	1	0	3	24
Ricaby	3	2	0	1	44
Rincon	10	5	0	5	113
Riverside	5	4	1	0	363
Ross	5	0	0	5	0
Round Lake	2	0	0	2	0
San Jose	7	4	2	1	35
Saxet-Deep	4	3	1	0	390
Scott & Hopper	6	4	2	0	210
Seeligson	67	63	1	3	10,143
Sejita	4	4	0	0	276
Seven Sisters	3	2	0	1	42
Sommer	2	0	0	2	0
South Campana	2	1	0	1	125
South Haldeman	2	1	0	1	40
Southland	10	8	0	2	445
South Seven Sisters	2	0	0	2	0
South Weslaco	2	0	2	0	0
Squire	4	3	1	0	482
Strake	2	1	0	1	138
Stratton	37	30	6	1	4,133
Sun	3	3	0	0	149
Tijerina-Canales	36	35	1	0	6,176
Wardlow	3	1	0	2	10
Washburn	3	1	0	2	26
Watkins	5	2	0	3	12
Welgang	17	17	0	0	1,795
West Cole	2	0	2	0	0
West Seven Sisters	2	0	1	1	0
West Sinton	6	5	1	0	527
Willamar	22	17	0	5	2,103
Willmann	5	0	3	2	0
Yturria	2	0	1	1	0
Miscellaneous	61	27	9	25	1,062
Total	1,006	729	70	207	79,103

SOUTHWEST TEXAS
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Aransas	4	2	0	2	29,240
Atascosa	18	1	0	17	76,875
Bandera	1	0	0	1	5,009
Bastrop	8	0	0	8	21,766
Bell	1	0	0	1	1,521
Bexar	6	0	0	6	12,430
Brooks	18	11	0	7	126,441
Caldwell	14	2	0	12	30,208
Cameron	6	0	0	6	58,230
Dimmit	3	0	0	3	17,931
Duval	69	12	5	52	275,854
Edwards	9	2	0	7	18,863
Frio	3	0	0	3	21,270
Gillespie	1	0	0	1	3,190
Guadalupe	10	1	0	9	24,204
Hays	1	0	0	1	690
Hidalgo	16	7	3	6	136,649
Jim Hogg	18	0	2	16	76,626
Jim Wells	20	14	2	4	128,761
Kendall	1	0	0	1	720
Kenedy	2	1	0	1	18,344
Kleberg	9	6	0	3	81,414
LaSalle	10	1	0	9	55,104
McMullen	17	3	0	14	37,768
Medina	6	1	0	5	12,283
Milam	7	0	0	7	15,385

Get EVERLASTING VALVE protection

Opening Type
Fig. 4721

For diversion of water to sprinkler deluge or water curtain system or to divert inflammable liquids to a point of safety.

Closing Type
Fig. 4831

For emergency shut-off of inflammable liquids or to divert water or steam to fire mains.

You are SURE of instant, unfailing safeguards when you install EVERLASTING VALVES operated with Pendulum Stop on your fire protection system.

When the weighted pendulum of this valve is released, there's not a moment of delay—the valve action is immediate and positive . . . the flow is full and unimpeded . . . there's no danger of sticking, binding or wedging.

And here's another important feature . . . the weighted pendulum can't damage the valve from impact at the bottom of its swing. No stop is needed to arrest the falling weight, because it disengages from the valve mechanism when its action is completed.

These valves are made in all sizes from 1 in. to 8 in. in metals to meet service conditions, and may be arranged for thermostatic, electrical or manual control from any location. Write for Bulletin E-52C describing these valves in detail.

EVERLASTING VALVE COMPANY
49 Fisk Street, Jersey City 5, N. J.
Trade mark "EVERLASTING" — Reg. U. S. Pat. Off.

EVERLASTING VALVES *GIVE "EVERLASTING" SERVICE*

County—	Comp.	Oil	Gas	Dry	Footage
Nueces	36	17	2	17	256,200
San Patricio	34	7	3	24	219,967
Starr	53	11	2	40	235,629
Travis	9	0	0	9	14,563
Uvalde	1	0	0	1	4,505
Val Verde	2	0	0	2	2,713
Webb	44	3	1	40	112,167
Willacy	9	0	0	9	94,405
Williamson	14	0	0	14	16,544
Zapata	19	1	2	16	36,094
Zavala	8	1	0	7	23,952
Total	507	104	22	381	2,306,264

TEXAS GULF COAST
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	22	7	2	13	160,925
February	23	6	4	13	189,265
March	43	9	2	32	317,189
April	31	8	2	21	219,464
May	41	14	3	24	301,576
June	39	8	6	25	274,915
July	33	9	2	22	220,877
August	55	20	5	30	405,879
September	38	4	2	32	301,551
October	27	6	1	20	184,404
November	36	6	3	27	261,264
December	29	3	4	22	199,874
Total	417	100	36	281	3,037,183

TEXAS GULF COAST
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	67	56	2	9	423,077
February	70	50	5	15	405,408
March	111	88	6	17	725,364
April	87	67	5	15	540,512
May	99	77	5	17	562,400
June	69	49	6	14	443,849
July	97	79	4	14	521,818
August	100	69	9	22	592,718
September	95	66	5	24	570,633
October	86	65	11	10	494,818
November	114	78	3	33	704,662
December	87	65	14	8	536,529
Total	1,082	809	75	198	6,521,786

TEXAS GULF COAST
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	89	63	4	22	584,002
February	93	56	9	28	594,673
March	154	97	8	49	1,042,553
April	118	75	7	36	759,976
May	140	91	8	41	863,976
June	108	57	12	39	718,764
July	130	88	6	36	742,695
August	155	89	14	52	998,597
September	133	70	7	56	872,184
October	113	71	12	30	679,222
November	150	84	6	60	965,926
December	116	68	18	30	736,403
Total	1,499	909	111	479	9,558,971

TEXAS GULF COAST
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Altair	5	5	0	0	570
Barbers Hill	4	3	0	1	597
Batson	3	1	1	1	5
Bay City	2	2	0	0	241
Big Creek	7	5	0	2	295
Bloomington	41	39	0	2	3,997
Blue Ridge	4	3	0	1	276
Boling (incl. Iago)	36	31	1	4	3,592
Bonnie View	14	13	0	1	987
Boyce	5	4	1	0	227
Burnell-Wilcox	16	12	4	0	486
Cabeza Creek	5	2	0	3	260
Caplen	4	2	1	1	379
Cedar Point	7	6	0	1	659
Chocolate Bayou	12	12	0	0	2,875
Coletto Creek	7	4	2	1	169
Cold Spring	8	8	0	0	687
Conroe	6	5	0	1	853
Daboval	2	1	1	0	298
Danbury	6	2	1	3	934
Dyersdale	4	3	0	1	309
Esperson	9	5	0	4	705
Fannett	8	5	0	3	709
Fisher's Reef	2	1	1	0	316
Frelsburg	2	2	0	0	203
Gaffney	2	0	1	1	0
Ganado	4	4	0	0	324
Gilbert Ranch	2	0	0	2	0
Gillock	4	3	1	0	299
Gobbler Creek	2	0	0	2	0
Goose Creek	13	13	0	0	1,048
Green	7	4	0	3	393
Hastings	2	0	0	2	0
Hecar	2	0	0	2	0
High Island	8	6	0	2	458
Hinnant	4	3	0	1	226
Huff	2	1	1	0	159
Hull	20	17	0	3	1,733
Humble	18	8	0	10	531
Hungerford	3	0	3	0	0
Hutchins	20	17	0	3	1,845
Jackson Pasture	2	1	0	1	163
Jacob	4	2	0	2	14
Jergins	2	2	0	0	302
Joyce Richardson	2	0	1	1	0
Kubela	7	7	0	0	757
Lagarto	3	1	1	1	35
Lake View	5	1	4	0	130
LaSalle	6	6	0	0	538
Livingston	16	14	1	1	2,874
Lolita	27	25	0	2	2,147
McCoy	6	5	1	0	1,758
Manvel	3	1	1	1	37
Markham	3	1	0	2	136
Midfields	8	5	2	1	709
Mt. Lucas	6	1	5	0	25
Needville	2	1	0	1	114
N. Cleveland	7	7	0	0	1,119
N. Delhi	2	2	0	0	105
N. Katy	11	11	0	0	768
N. Keeran	2	1	1	0	25
N. Markham	2	1	0	1	51
N. McFaddin	2	0	1	1	0
N. Pettus-Wilcox	5	3	1	1	34
N. Port Neches	7	6	0	1	1,119
N. Stowell	6	6	0	0	1,450
N. Thompson	14	8	0	6	1,201
N. Winnie	3	1	2	0	271

ADSCO
TYPE "T" STEAM
TRAPS
the Most Convenient Trap Available
IN
ADSCO
OUT
VALVE AND FLOAT MECHANISM MOUNTED ON COVER
No need to touch piping while cleaning
NON-CORROSIVE STAINLESS STEEL VALVE AND SEAT REVERSIBLE FOR DOUBLE LIFE
COMPACT, LARGE CAPACITY FLOAT AND THERMOSTATIC TRAPS arranged for CONVENIENT PIPING of inlet and outlet
FOR ALL STEAM PRESSURES to 125 psi
AMERICAN DISTRICT STEAM CO.
NORTH TONAWANDA, N.Y.

Field—	Comp.	Oil	Gas	Dry	Prod.
Oakville-Wilcox	2	1	1	0	no gage
Olive	2	2	0	0	44
Old Ocean	9	7	0	2	1,449
Orange	5	2	0	3	115
Oyster Bayou	9	8	0	1	2,915
Pierce Junction	25	21	1	3	2,146
Pinehurst	2	2	0	0	292
Pledger	3	0	2	1	0
Poehler	5	3	1	1	299
Porter	7	4	1	2	547
Port Neches	7	5	0	2	369
Pridham Lake	11	7	3	1	783
Red Fish Reef	7	6	0	1	1,510
Refugio	4	0	2	2	0
Refugio-Fox	3	1	1	1	103
Refugio-Heard	25	19	2	4	1,881
Roche	17	17	0	0	2,261
Sabine Tram	3	2	0	1	320
Sam Houston	3	2	0	1	63
Saratoga	38	29	0	9	2,804
Schwartz	6	3	0	3	263
Scoby Lake	2	1	0	1	55
Sheridan	2	2	0	0	300
Sheriff	17	16	0	1	1,129
Sour Lake	37	26	1	10	2,130
S. Gillock	2	2	0	0	110
S. Hutchins	4	2	0	2	202
S. Liberty	4	3	0	1	152
Spindletop	4	3	0	1	156
Stratton Ridge	2	1	0	1	133
Sublime	3	2	0	1	123
Sugarland	4	2	0	2	616
Sugar Valley	38	36	0	2	6,235
Tide Haven	3	1	0	2	88
Tom O'Connor	69	65	3	1	8,809
Tulsita-Wilcox	16	14	0	2	1,198
W. Columbia	19	12	0	7	2,032
W. Cosden-Wilcox & Mackhank	21	20	0	1	1,880
W. Ganado	2	2	0	0	223
W. Pridham Lake	24	18	1	5	1,111
West Ranch	22	22	0	0	2,387
Wyrick	4	2	1	1	255
Yoward	6	5	0	1	851
Miscellaneous	89	40	15	34	3,284
Total	1,082	809	75	198	95,211

TEXAS GULF COAST
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Austin	2	0	0	2	20,531
Bee	23	6	2	15	136,664
Brazoria	21	5	0	16	179,989
Burleson	2	1	0	1	4,135
Calhoun	15	4	3	8	110,144
Chambers	21	2	1	18	188,504
Colorado	7	3	2	2	69,709
DeWitt	7	1	1	5	60,163
Fayette	7	0	1	6	35,990
Fort Bend	21	1	0	20	144,160
Galveston	5	3	0	2	41,975
Goliad	9	3	1	5	69,211
Gonzales	4	0	0	4	32,817
Hardin	5	4	0	1	35,920
Harris	17	7	1	9	133,634
Jackson	16	5	1	10	103,738
Jasper	2	0	0	2	18,878
Jefferson	7	1	0	6	67,973
Karnes	21	3	0	18	121,483
Lavaca	8	2	1	5	64,550
Lee	1	0	0	1	6,434
Liberty	17	3	0	14	147,823
Live Oak	27	5	4	18	157,810
Madison	1	0	0	1	2,937
Matagorda	10	3	0	7	107,968
Montgomery	9	0	0	9	65,901
Newton	4	2	0	2	36,082
Orange	13	4	1	8	108,583
Polk	3	0	0	3	13,298
Refugio	25	9	6	10	179,786
San Jacinto	7	1	0	*6	56,683
Trinity	1	1	0	0	10,822
Tyler	7	1	1	5	59,033
Victoria	16	6	2	8	93,173
Walker	4	0	0	4	16,832
Waller	1	0	0	1	9,772
Washington	2	0	0	2	19,984
Wharton	44	14	8	22	278,708
Wilson	5	0	0	5	25,378
Total	417	100	36	281	3,037,183

SOUTH LOUISIANA
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	9	3	0	6	96,385

STOP FIRE FASTER

WITH AN

THE MASTER OF FLAME
ANSUL
*REG. U.S. PAT. OFF.
FIRE EXTINGUISHING EQUIPMENT

DRY CHEMICAL

FIRE EXTINGUISHER

● FASTER fire-stopping power is your first requirement when fire breaks out... and Ansul Dry Chemical Fire Extinguishers give you that extra margin of protection against major fire damage.

● In addition, you get GREATER fire-stopping power... because Ansul Plus-Fifty Dry Chemical releases its flame smothering gases in the heart of the flames.

● For fires in flammable liquids and in electrical equipment, Ansul Dry Chemical Fire Extinguishers provide greater protection... pound for pound and dollar for dollar than any other extinguisher.

Get the facts. Ask for authoritative comparative ratings as determined by a national approval agency.

MADE BY THE MANUFACTURERS OF ANSUL DRY CHEMICAL FIRE EXTINGUISHERS, MODELS 4, 20, 30, 150-A AND 350-A.

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

Month—	Comp.	Oil	Gas	Dry	Footage
February	10	7	0	3	104,066
March	15	7	2	6	146,939
April	8	2	0	6	88,741
May	14	5	2	7	146,352
June	14	3	0	11	153,262
July	12	2	2	8	128,580
August	15	9	0	6	176,923
September	10	5	0	5	93,711
October	11	7	0	4	120,924
November	18	5	0	13	185,453
December	6	2	0	4	46,466
Total	142	57	6	79	1,487,804

SOUTH LOUISIANA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	33	21	2	10	309,310
February	42	32	0	10	328,191
March	30	21	1	8	271,612
April	42	35	2	5	362,085
May	43	38	0	5	350,602
June	28	20	1	7	224,170
July	46	36	0	10	409,846
August	54	41	0	13	456,723
September	45	36	0	9	375,729
October	36	32	0	4	310,351
November	67	41	1	25	534,316
December	43	33	2	8	376,291
Total	509	386	9	114	4,309,226

SOUTH LOUISIANA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	42	24	2	16	405,695
February	52	39	0	13	432,257
March	45	28	3	14	418,511
April	50	37	2	11	450,826
May	57	43	2	12	496,954
June	42	23	1	18	377,432
July	58	38	2	18	538,426
August	69	50	0	19	633,646
September	55	41	0	14	469,440
October	47	39	0	8	431,275
November	85	46	1	38	719,769
December	49	35	2	12	422,757
Total	651	443	15	193	5,797,028

Altimeters
for all preliminary surveys
How much money will this instrument save YOU? Preliminary surveys in 1/10th the time with accuracy better than 1 part in 1000.
Type SA-1: Range 4360' (-760' to + 3,600') in intervals of 2'
Type SA-2: Range 10600' (-900' to + 9,700') in intervals of 5'
Type SA-5: Range 15000' (-500' to + 14,500') in intervals of 10'
All models priced $200 complete with case, hand & shoulder straps, magnifier and thermometer. IMMEDIATE DELIVERY —see your dealer or write direct for descriptive folder.
AMERICAN PAULIN SYSTEM
Manufacturers of Precision Instruments
Altimeters

SOUTH LOUISIANA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Alliance	2	1	0	1	70
Anse La Butte	4	3	0	1	448
Avery Island	6	5	0	1	1,267
Barataria	3	3	0	0	856
Bateman Lake	2	1	1	0	no gage
Bay De Chene	2	1	0	1	250
Bayou Choctaw	9	6	1	2	594
Bayou Couba	4	1	0	3	249
Bayou De Fleur	3	2	0	1	302
Bayou Des Glaise	6	4	0	2	747
Bayou Mallet	4	4	0	0	244
Bayou Perot	2	1	0	1	200
Bayou Sale	6	6	0	0	1,629
Bay St. Elaine	11	10	0	1	2,032
Belgard	5	4	0	1	1,449
Belle Isle	3	2	0	1	937
Bivens	6	3	0	3	344
Black Bayou	7	7	0	0	3,940
Bully Camp	2	1	0	1	385
Caillou Island	8	8	0	0	1,944
Cameron Meadows	2	2	0	0	150
Charenton	23	14	0	9	1,415
Delacroix	4	4	0	0	873
Delta Duck	4	4	0	0	797
Delta Farms	16	15	0	1	3,231
Des Allemands	2	1	0	1	189
Dog Lake	6	5	0	1	909
E. Hackberry	6	4	0	2	772
Edgerly	3	1	0	2	23
Egan	22	22	0	0	4,163
Fausse Point	2	1	0	1	205
Four Isle Dome	4	1	0	3	135
Garden Island Bay	5	5	0	0	882
Golden Meadow	22	22	0	0	2,740
Good Hope	6	6	0	0	1,441
Grand Bay	8	7	0	1	1,857
Gueydan	2	1	0	1	152
Holmwood	8	7	0	1	1,333
Horseshoe Bayou	3	2	0	1	497
Iberia	3	0	0	3	0
Jennings	3	2	0	1	270
Lake Mongoulois	2	2	0	0	703
Lake Pelto	7	4	0	3	348
La Pice	3	1	0	2	284
Laurel Ridge	2	2	0	0	185
Leeville	9	4	0	5	606
Lockport	3	2	1	0	213
Longville	10	9	0	1	2,303
Mamou	5	3	0	2	362
Napoleonville	4	1	0	3	172
New Iberia	2	1	0	1	28
North Cankton	6	3	1	2	119
North Crowley	2	2	0	0	265
North Tepetate	7	7	0	0	1,114
Oretta	2	2	0	0	151
Paradis	5	5	0	0	936
Pecan Island	3	1	0	2	63
Pine Prairie	5	5	0	0	550
Port Barre	13	10	0	3	2,676
Quarantine Bay	4	4	0	0	1,628
Reddell	5	3	0	2	325
Richie	5	5	0	0	391
Rosedale	2	1	0	1	25
St. Gabriel	5	3	0	2	363
St. Martinville	6	3	0	3	189
Sect. 28 Dome	6	4	0	2	1,168
Shuteston	2	2	0	0	100
Singer	4	2	0	2	254
Sorrento	3	1	0	2	59
South Bayou Mallet	3	1	0	2	226
South Jeanerette	2	2	0	0	195
South Roanoke	3	1	1	1	24
Stella	2	2	0	0	465
Sulphur Mine	4	4	0	0	523
Tepetate	11	10	0	1	842
University	5	5	0	0	771
Valentine	2	1	0	1	42
Venice	7	7	0	0	2,063

Field—	Comp.	Oil	Gas	Dry	Prod.
Vinton	2	1	0	1	166
Weeks Island	4	2	0	2	892
Welsh	2	1	0	1	15
West Bay	8	7	0	1	2,538
West Barataria	13	13	0	0	3,155
West Cote Blanche Bay	4	2	1	1	471
West Gueydan	2	1	0	1	108
West Hackberry	3	3	0	0	922
West Lake Verret	5	5	0	0	1,243
West Tepetate	10	9	0	1	1,679
West White Lake	3	1	0	2	102
White Castle	4	4	0	0	911
Miscellaneous	29	13	3	13	2,506
Total	509	386	9	114	75,440

SOUTH LOUISIANA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Acadia	7	2	0	5	75,627
Allen	1	0	0	1	7,526
Ascension	1	0	0	1	12,983
Assumption	3	1	0	2	24,807
Avoyelles	5	2	0	3	43,827
Beauregard	7	4	0	3	60,958
Calcasieu	13	8	0	5	115,128
Cameron	6	3	2	1	64,514
Evangeline	2	0	0	2	21,046
Iberia	13	6	2	5	152,629
Iberville	5	3	0	2	49,896
Jefferson	5	3	0	2	59,371
Jefferson Davis	8	1	1	6	77,780
Lafayette	3	1	0	2	36,217
Lafourche	6	4	0	2	59,999
Plaquemines	10	5	0	5	116,011
Rapides	3	0	0	3	28,309
St. Bernard	2	0	0	2	21,295
St. Charles	4	0	0	4	41,657
St. Helena	1	0	0	1	10,042
St. John the Baptist	1	0	0	1	11,500
St. Landry	3	1	0	2	40,739
St. Martin	7	3	0	4	70,980
St. Mary	9	3	0	6	97,182
Terrebonne	8	4	1	3	87,413
Vermilion	5	3	0	2	60,993
Vernon	1	0	0	1	12,159
West Baton Rouge	2	0	0	2	19,684
West Feliciana	1	0	0	1	7,530
Total	142	57	6	79	1,487,802

NORTH LOUISIANA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	9	0	0	9	38,802
February	6	0	0	6	28,863
March	6	0	0	6	21,544
April	8	0	0	8	35,389
May	12	1	1	10	59,796
June	8	1	2	5	32,776
July	21	2	0	19	86,273
August	17	0	0	17	80,191
September	12	0	0	12	40,375
October	14	0	0	14	87,701
November	13	2	0	11	77,826
December	10	0	0	10	47,415
Total	136	6	3	127	636,951

NORTH LOUISIANA

Development Completions by Months

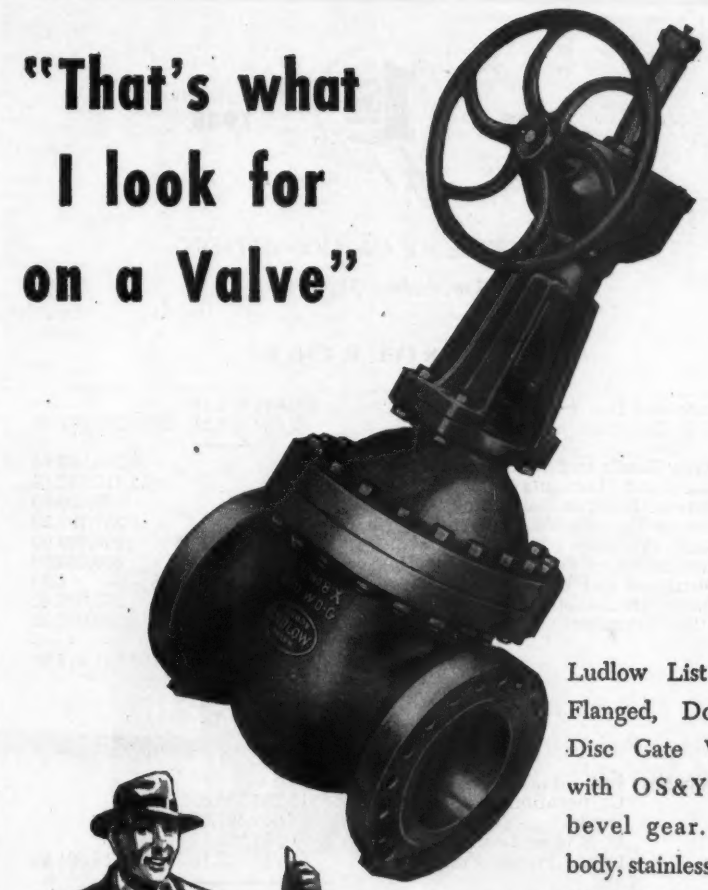
Month—	Comp.	Oil	Gas	Dry	Footage
January	35	27	1	7	123,611
February	46	28	8	10	143,400
March	34	23	2	9	124,484
April	35	21	3	11	101,628
May	65	45	8	12	177,030
June	54	33	5	16	154,614
July	98	62	9	27	308,809
August	107	81	9	17	255,864
September	79	56	8	15	194,883
October	112	87	13	12	291,273
November	82	59	11	12	199,431
December	92	65	10	17	200,202
Total	839	587	87	165	2,275,229

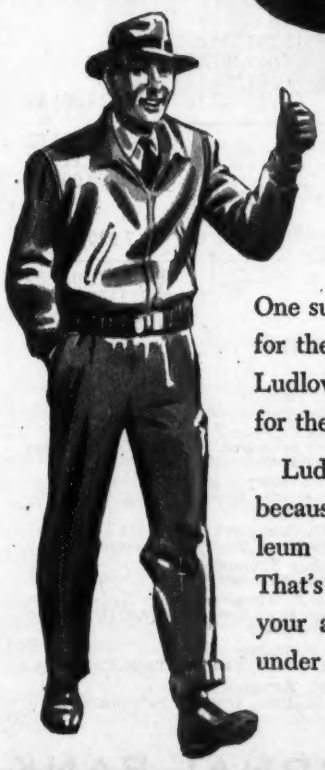
NORTH LOUISIANA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	44	27	1	16	162,413
February	52	28	8	16	172,263

"That's what I look for on a Valve"





Ludlow List 8X. Flanged, Double Disc Gate Valve with OS&Y and bevel gear. Iron body, stainless steel trim. Working pressure, 800 lbs.

One sure way to pick a good valve is to look for the trade-mark. When you see the name Ludlow, you can be sure the valve is right for the job and will stand up year after year.

Ludlow knows what oil men need in valves because Ludlow has been serving the petroleum industry since the "Gay Nineties." That's why the Ludlow trade-mark is always your assurance of smooth, accurate control under all conditions.

O-1

The LUDLOW VALVE SINCE 1866

MFG·CO·INC·TROY·N·Y·

1895 1st of Tulsa 1948

STATEMENT OF CONDITION

December 31, 1947

RESOURCES

Cash and Due from Banks	$50,649,073.11	
U. S. Government Securities	63,638,002.31	$114,287,075.42
Other Bonds and Securities		8,308,963.48
Loans and Discounts		36,418,532.14
Federal Reserve Bank Stock		180,000.00
Income Earned, Not Collected		257,796.30
Bank Premises		906,499.00
Investment in Future Banking House		500,000.00
Furniture and Fixtures		1.00
Customers' Liability under Letters of Credit		73,097.42
Other Resources		99,952.83
		$161,031,917.59

LIABILITIES

Deposits: Individuals, Firms and Corporations	$115,254,303.65	
Banks	24,049,467.55	
U. S. War Loan Account	1,352,268.19	
Other Public Funds	11,758,522.16	$152,414,561.55
Income Collected, Not Earned		173,472.82
Taxes, Interest and Expense—Accrued		450,119.17
Letters of Credit Outstanding		73,097.42
Capital	$ 2,000,000.00	
Surplus	4,000,000.00	
Undivided Profits and Reserves	1,920,666.63	7,920,666.63
		$161,031,917.59

DIRECTORS

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Vice President

Allmand M. Blow
Vice President, Amerada Petroleum Corp.

W. M. Bovaird
President, Bovaird Supply Company

J. P. Byrd, Jr.
Assistant to the President

F. L. Dunn
Executive Vice President

A. L. Farmer
Real Estate

Elmer Hale
President, Hale-Halsell Company

John D. Mayo
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President

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Jay P. Walker
President, National Tank Company

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President, Warren Petroleum Corp.

THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Month—	Comp.	Oil	Gas	Dry	Footage
March	40	23	2	15	146,028
April	43	21	3	19	137,017
May	77	46	9	22	236,826
June	62	34	7	21	187,390
July	119	64	9	46	395,082
August	124	81	9	34	336,055
September	91	56	8	27	235,258
October	126	87	13	26	378,974
November	95	61	11	23	277,257
December	102	65	10	27	247,617
Total	975	593	90	292	2,912,180

NORTH LOUISIANA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Benton	6	4	0	2	12,123
Big Creek	30	21	1	8	98,406
Caddo	294	267	0	27	596,578
Converse	15	11	0	4	32,409
Cotton Valley	14	8	0	6	94,507
Delhi	45	26	4	15	156,505
Haynesville	6	5	0	1	52,823
Holly	7	1	1	5	22,785
Homer	5	4	0	1	6,855
Knowles	2	1	1	0	17,132
Lake St. John	13	13	0	0	105,837
Lisbon	14	8	6	0	103,533
Little Creek	5	4	0	1	12,655
Monroe	47	0	47	0	105,391
Ora	96	80	0	16	205,964
Sligo	4	0	3	1	19,531
Tullos	15	13	0	2	23,081
Waskom	2	1	0	1	7,275
Miscellaneous	219	120	24	75	601,834
Total	839	587	87	165	2,275,220

NORTH LOUISIANA

Wildcat Completions by Parishes

Parish—	Comp.	Oil	Gas	Dry	Footage
Benton	1	0	0	1	3,513
Bienville	2	0	0	2	9,800
Bossier	6	0	0	6	25,112
Caddo	6	0	0	6	25,198
Caldwell	1	0	0	1	6,006
Catahoula	4	1	0	3	33,150
Claiborne	4	0	1	3	32,672
Concordia	2	0	0	2	19,810
DeSoto	15	1	1	13	72,738
East Carroll	5	0	0	5	19,238
Franklin	9	0	0	9	39,343
Grant	2	0	0	2	13,941
LaSalle	3	0	0	3	26,437
Madison	11	1	0	10	49,920
Monroe	1	0	0	1	2,196
Morehouse	3	0	0	3	9,414
Natchitoches	3	0	0	3	11,695
Ouachita	2	0	0	2	8,854
Red River	3	1	0	2	17,831
Richland	15	0	1	14	51,333
Sabine	4	0	0	4	20,013
Tensas	2	0	0	2	12,539
Union	25	2	0	23	84,365
Webster	1	0	0	1	12,350
Winn	6	0	0	6	29,474
Total	136	6	3	127	636,951

ARKANSAS

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	7	0	0	7	30,804
February	2	0	0	2	7,931
March	3	0	0	3	15,452
April	3	0	0	3	12,383
May	9	0	0	9	25,489
June	1	0	0	1	3,809
July	6	1	0	5	29,413
August	10	0	0	10	38,616
September	3	0	0	3	8,930
October	10	1	0	9	47,861
November	5	0	0	5	19,102
December	6	0	0	6	32,478
Total	65	2	0	63	272,268

ARKANSAS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	17	13	1	3	99,541
February	15	11	1	3	63,655
March	15	9	0	6	65,434
April	15	8	1	6	66,872
May	27	19	2	6	109,739
June	23	14	1	8	114,046
July	18	10	1	7	94,688
August	32	23	1	8	128,038
September	20	15	0	5	67,797

Month—	Comp.	Oil	Gas	Dry	Footage
October	32	20	2	10	110,285
November	32	25	0	7	143,153
December	18	13	0	5	73,247
Total	264	180	10	74	1,136,495

ARKANSAS
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	24	13	1	10	130,345
February	17	11	1	5	71,586
March	18	9	0	9	80,886
April	18	8	1	9	79,255
May	36	19	2	15	135,228
June	24	14	1	9	117,855
July	24	11	1	12	124,101
August	42	23	1	18	166,654
September	23	15	0	8	76,727
October	42	21	2	19	158,146
November	37	25	0	12	162,255
December	24	13	0	11	105,725
Total	329	182	10	137	1,408,763

ARKANSAS
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Footage
Atlanta	7	7	0	0	56,985
Buckner	17	14	0	3	88,521
Fouke	10	6	0	4	45,279
Irma	2	0	0	2	6,550
Lewisville	5	1	0	4	21,923
Magnolia	5	5	0	0	38,136
Midway	6	4	0	2	39,001
Patton	5	5	0	0	40,409
Rainbow	1	1	0	0	2,660
Smackover	6	2	0	4	57,951
Spirit Lake	15	13	0	2	125,625
Village	19	16	0	3	138,214
Wesson	78	60	1	17	246,235
Miscellaneous	88	46	9	33	229,006
Total	264	180	10	74	1,136,495

ARKANSAS
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Arkansas	2	0	0	2	7,364
Ashley	6	0	0	6	21,667
Bradley	1	0	0	1	4,504
Calhoun	2	0	0	2	6,165
Chicot	1	0	0	1	4,830
Clark	1	0	0	1	1,054
Columbia	5	0	0	5	32,500
DeSha	2	0	0	2	9,545
Drew	2	0	0	2	8,920
Hempstead	5	0	0	5	12,751
Jefferson	2	0	0	2	7,497
Lafayette	7	1	0	6	41,571
Little River	6	0	0	6	21,476
Logan	1	0	0	1	4,780
Lonoke	1	0	0	1	635
Miller	5	1	0	4	25,722
Nevada	3	0	0	3	9,217
Ouachita	4	0	0	4	10,638
Union	9	0	0	9	41,432
Total	65	2	0	63	272,268

MISSISSIPPI
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	15	0	1	14	99,632
February	4	0	0	4	27,437
March	5	0	0	5	42,965
April	2	0	0	2	17,699
May	11	0	0	11	91,306
June	9	0	0	9	52,878
July	8	0	0	8	64,662
August	8	0	0	8	58,717
September	9	1	0	8	62,352
October	9	1	0	8	59,197
November	8	0	0	8	50,510
December	6	0	0	6	31,929
Total	94	2	1	91	659,284

MISSISSIPPI
Development Completions by Months

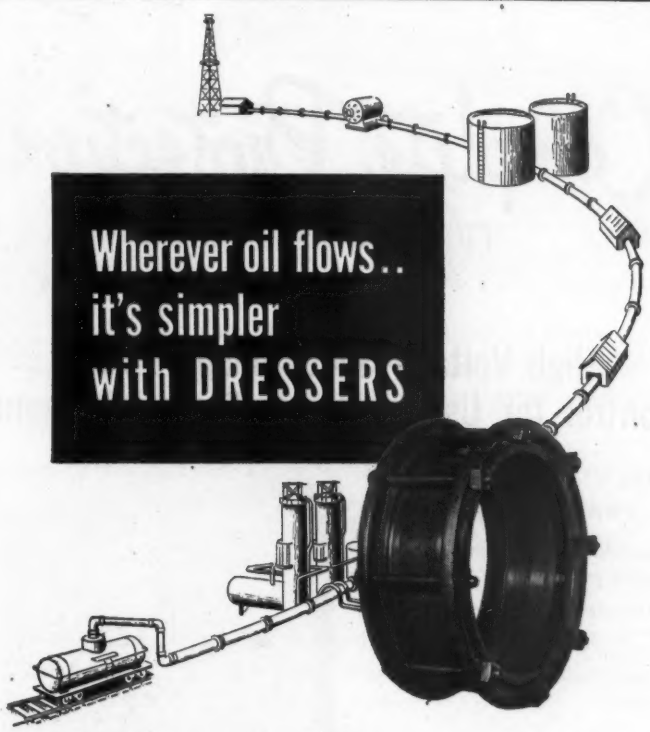
Month—	Comp.	Oil	Gas	Dry	Footage
January	23	22	0	1	213,992
February	16	15	0	1	149,291
March	25	15	5	5	167,762
April	28	21	2	5	256,545
May	45	38	3	4	419,224
June	47	35	4	8	393,997
July	40	35	0	5	358,834
August	47	38	4	5	401,956
September	22	18	1	3	204,671
October	34	27	3	4	305,751
November	36	30	0	6	303,632
December	34	23	6	5	297,512
Total	397	317	28	52	3,473,167

MISSISSIPPI
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	38	22	1	15	313,624
February	20	15	0	5	176,728
March	30	15	5	10	210,727
April	30	21	2	7	274,244
May	56	38	3	15	510,530
June	56	35	4	17	446,875
July	48	35	0	13	423,496
August	55	38	4	13	460,673
September	31	19	1	11	267,023
October	43	28	3	12	364,948
November	44	30	0	14	354,142
December	40	23	6	11	329,441
Total	491	319	29	143	4,132,451

MISSISSIPPI
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Baxterville	52	48	1	3	14,233
Brookhaven	124	110	0	14	48,208
Carthage Point	3	2	0	1	608
Cranfield	12	11	0	1	3,894
Eucutta	13	12	0	1	1,750
Fayette	3	1	0	2	132
Gwinville	36	14	17	5	580
Heidelberg	16	13	0	3	1,305
Hub	4	4	0	0	355
La Grange	48	41	0	7	4,973
Langsdale	9	6	0	3	373
Mallalieu	47	40	0	7	24,504
Pickens	2	1	0	1	42
Pine Ridge	1	0	0	1	0
Sandersville	1	0	0	1	0
Soso	5	3	1	1	225
Tinsley	1	1	0	0	303
Miscellaneous	20	10	9	1	266
Total	397	317	28	52	101,751



From well to terminal, wherever oil flows, Dresser Couplings simplify joining of pipe and equipment. On well and separator piping—Christmas trees—gathering lines—transmission lines—manifolds—tank hookups—salt-water disposal lines—pump, engine and compressor connections—refinery lines—terminal lines—wherever a tight, flexible joint is required.

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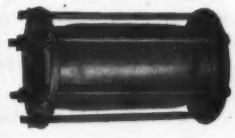

DRESSER LONG SLEEVES
(Style 40)
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ONE OF THE DRESSER INDUSTRIES

Dresser Manufacturing Division, Bradford, Pennsylvania
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MISSISSIPPI

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Adams	1	0	0	1	7,225
Amite	2	0	0	2	23,147
Attala	1	0	0	1	7,108
Chickasaw	1	0	0	1	2,642
Claiborne	1	0	0	1	10,007
Clarke	2	0	0	2	9,824
Clay	1	0	0	1	9,243
Copiah	1	0	0	1	10,177
Covington	2	0	0	2	12,520
Forest	4	0	0	4	46,380
Franklin	1	1	0	0	10,747
Greene	1	0	0	1	10,229
Hinds	4	0	0	4	22,459
Holmes	1	0	0	1	6,993
Humphreys	4	0	0	4	22,413
Issaquena	3	0	0	3	12,172
Jasper	1	0	0	1	5,471
Jefferson	5	0	1	4	44,068
Jones	3	1	0	2	25,604
Lamar	1	0	0	1	8,327
Lauderdale	1	0	0	1	5,010
Lincoln	4	0	0	4	43,054
Madison	4	0	0	4	22,592
Marion	3	0	0	3	30,794
Neshoba	1	0	0	1	6,132
Newton	1	0	0	1	5,510
Rankin	2	0	0	2	16,986
Scott	1	0	0	1	6,192
Sharkey	8	0	0	8	34,684
Simpson	1	0	0	1	8,805
Smith	2	0	0	2	17,910
Stone	1	0	0	1	11,502
Tishomingo	1	0	0	1	1,513
Union	1	0	0	1	1,617
Walthall	1	0	0	1	10,215
Warren	2	0	0	2	9,632
Washington	9	0	0	9	43,690
Wayne	2	0	0	2	13,016
Yazoo	9	0	0	9	63,674
Total	94	2	1	91	659,284

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SAFE — a fully metal-enclosed unit.

Provides the following motor protection:

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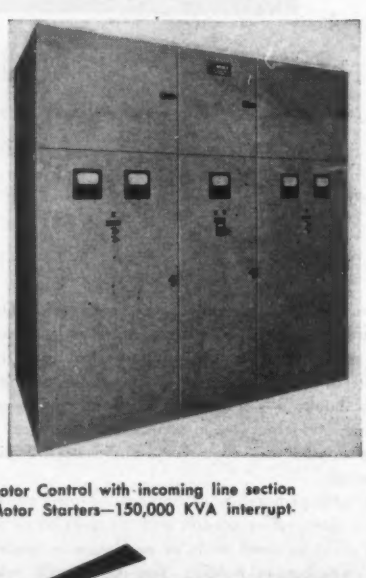

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Switchboards
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ALABAMA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	0	0	1	3,750
February	2	0	0	2	5,899
March	0	0	0	0	0
April	1	0	0	1	2,115
May	1	0	0	1	4,731
June	0	0	0	0	0
July	3	0	0	3	13,945
August	2	0	0	2	6,200
September	3	0	0	3	10,692
October	4	0	0	4	19,709
November	3	0	0	3	18,123
December	3	0	0	3	16,040
Total	23	0	0	23	100,504

ALABAMA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	1	1	0	0	3,280
April	1	1	0	0	3,281
July	1	1	0	0	3,327
August	1	0	0	1	2,332
September	2	2	0	0	7,498
Total	6	5	0	1	19,718

ALABAMA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	1	0	0	1	3,750
February	3	1	0	2	9,179
March	0	0	0	0	0
April	2	1	0	1	5,396
May	1	0	0	1	4,731
June	0	0	0	0	0
July	4	1	0	3	16,572
August	3	0	0	0	8,532
September	5	2	0	3	18,190
October	4	0	0	4	19,709
November	3	0	0	3	18,123
December	3	0	0	3	16,040
Total	29	5	4	24	120,222

ALABAMA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Gilbertown	6	5	0	1	283
Total	6	5	0	1	283

ALABAMA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Bullock	1	0	0	1	1,415
Choctaw	4	0	0	4	20,770
Clarke	3	0	0	3	13,711
Conecuh	1	0	0	1	8,324
Crenshaw	1	0	0	1	9,017
Escambia	2	0	0	2	14,566
Fayette	1	0	0	1	4,571
Geneva	2	0	0	2	8,144
Marengo	2	0	0	2	6,947
Monroe	1	0	0	1	4,731
Montgomery	1	0	0	1	1,505
Morgan	1	0	0	1	2,115
Pike	2	0	0	2	3,984
Washington	1	0	0	1	7,520
Total	23	0	0	13	107,320

GEORGIA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
March	1	0	0	1	3,847
August	2	0	0	2	8,098
November	1	0	0	1	3,120
December	1	0	0	1	3,705
Total	5	0	0	5	18,770

GEORGIA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Appling	2	0	0	2	8,098
Clinch	1	0	0	1	3,847
Decatur	1	0	0	1	3,705
Toombs	1	0	0	1	3,120
Total	5	0	0	5	18,770

FLORIDA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	4	0	0	4	21,222
February	3	0	0	3	13,340

Month—	Comp.	Oil	Gas	Dry	Footage
March	1	0	0	1	4,633
April	1	0	0	1	15,455
May	3	0	0	3	8,553
June	2	0	0	2	15,291
July	2	0	0	2	7,435
August	4	0	0	4	31,761
September	2	0	0	2	10,074
October	3	0	0	3	16,006
November	1	0	0	1	6,020
December	1	0	0	1	1,035
Total	27	0	0	27	150,725

FLORIDA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
May	1	1	0	0	11,578
October	1	1	0	0	11,573
November	1	0	0	1	11,590
Total	3	2	0	1	34,741

FLORIDA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	4	0	0	4	21,222
February	3	0	0	3	13,240
March	1	0	0	1	4,633
April	1	0	0	1	15,455
May	4	1	0	3	20,131
June	2	0	0	2	15,291
July	2	0	0	2	7,435
August	4	0	0	4	31,761
September	2	0	0	2	10,074
October	4	1	0	3	27,579
November	2	0	0	2	17,610
December	1	0	0	1	1,035
Total	30	2	0	28	185,466

FLORIDA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Sunniland	3	2	0	1	638
Total	3	2	0	1	638

FLORIDA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Alachua	3	0	0	3	8,129
Baker	1	0	0	1	3,348
Bradford	1	0	0	1	3,167
Calhoun	1	0	0	1	4,876
Clay	1	0	0	1	5,862
Collier	1	0	0	1	11,943
Franklin	2	0	0	2	7,716
Gulf	1	0	0	1	5,069
Holmes	1	0	0	1	4,107
Levy	2	0	0	2	6,895
Marion	1	0	0	1	4,637
Monroe	2	0	0	2	21,555
Okaloosa	1	0	0	1	5,505
Osceola	1	0	0	1	8,798
Palm Beach	1	0	0	1	13,375
Putnam	1	0	0	1	3,328
Suwannee	2	0	0	2	6,728
Flagler	1	0	0	1	4,633
Walton	2	0	0	2	11,773
Washington	1	0	0	1	6,020
Total	27	0	0	27	147,464

WESTERN KENTUCKY

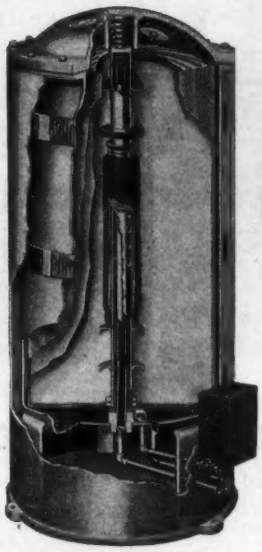
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	6	1	0	5	16,192
February	3	0	0	3	7,344
March	2	1	0	1	2,441
April	9	3	0	6	16,272
May	4	2	0	2	7,739
June	2	0	0	2	3,173
July	17	0	0	17	37,925
August	8	2	1	5	16,897
September	8	1	1	6	12,708
October	6	2	1	3	11,727
November	10	0	0	10	22,070
December	18	0	0	18	43,753
Total	93	12	3	78	198,241

WESTERN KENTUCKY

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	24	17	1	6	40,462
February	15	5	3	7	27,952
March	27	21	0	6	38,388
April	40	23	1	16	59,755
May	42	19	1	22	59,828



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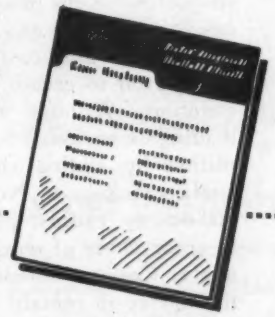

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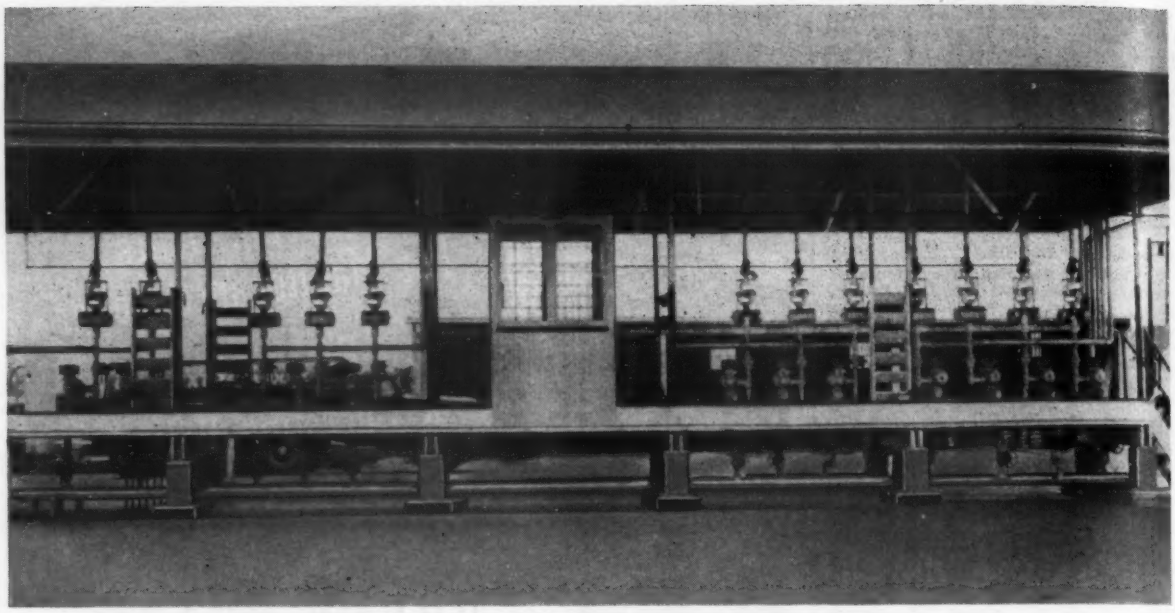

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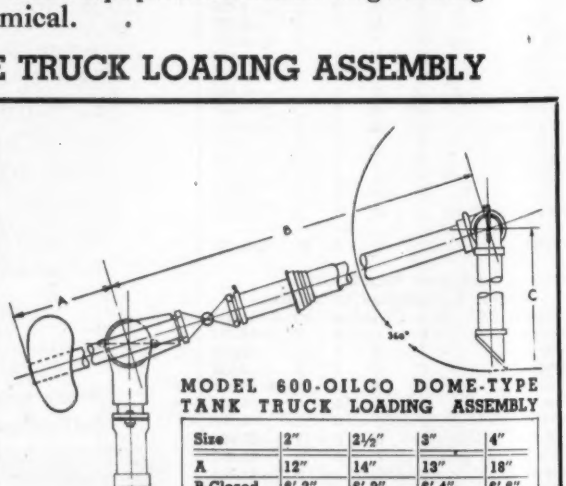
MODEL 600 OILCO LOADER responds to every loading demand with ease of operation and built-in flexibility; brass, steel and cast-iron construction, engineered to create minimum flow restriction. Without re-spotting trucks, loading of various compartments is simplified by sliding sleeve. The bronze angle swing joint, No. 827, swings in a 360-degree radius, permitting dip pipe to enter dome of trucks easily from any angle. Counter-balanced weights allow the loader to remain in upright position when not in use. A vacuum breaker completely drains the assembly immediately as it is raised from the truck.



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Month—	Comp.	Oil	Gas	Dry	Footage
June	55	28	1	26	82,332
July	40	29	3	8	56,200
August	22	18	0	4	37,300
September	28	21	0	7	53,524
October	59	39	2	18	102,030
November	64	31	4	29	97,293
December	42	25	4	13	63,960
Total	458	276	20	162	719,024

WESTERN KENTUCKY
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	30	18	1	11	56,654
February	18	5	3	10	35,296
March	29	22	0	7	40,829
April	49	26	1	22	76,027
May	46	21	1	24	67,567
June	57	28	1	28	85,505
July	57	29	3	25	94,125
August	30	20	1	9	54,197
September	36	22	1	13	66,232
October	65	41	3	21	113,757
November	74	31	4	39	119,363
December	60	25	4	31	107,713
Total	551	288	23	240	917,265

WESTERN KENTUCKY
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod
Anton	7	1	3	3	64
Bells Run	5	3	0	2	15
Birk City	16	11	3	2	998
Buck Creek	4	3	0	1	43
Buford	9	6	0	3	97
Cairo	3	0	0	3	0
Cairo, New	14	9	0	5	806
Cane Run	32	25	0	7	548
Chapel Hill	5	3	0	2	60
Clay	2	0	0	2	0
Clay, East	2	1	0	1	10
Cleopatra	4	3	0	1	16
Colliers	8	5	0	3	121
Concord Ch.	12	3	0	9	111
Corydon, East	2	1	0	1	17
Curdsville	4	2	0	2	15
Dixie	12	6	2	4	873
Elkton	2	0	1	1	0
Fordsville	7	4	0	3	20
Friendship Chapel	4	3	0	1	67
Glenville	5	1	0	4	5
Greensbriar	2	0	0	2	0
Griffiths	37	28	8	1	1,158
Guffie	36	28	1	7	4,642
Hitesville	7	6	0	1	280
Hovey	2	2	0	0	170
Huntsville	2	2	0	0	12
Lewisburg	7	1	0	6	100
Livermore	2	0	0	2	0
Livermore, S.	2	1	0	1	30
Marvin-Weller	3	3	0	0	44
Montanzos	2	1	0	1	30
Narrows	3	3	0	0	75
Owensboro	2	1	0	1	5
Panther	2	2	0	0	340
Pleasant Ridge	8	3	0	5	41
Poole	11	7	0	4	943
Poole, East	5	1	0	4	7
Poole, South	5	3	0	2	178
Robards	2	0	0	2	0
Robinsonville	2	0	0	2	0
St. Vincent	4	1	0	3	37
Silver City	5	4	0	1	38
Slaughters	22	14	0	2	1,520
Spring Grove	7	6	0	1	143
Stanley	9	6	0	3	184
Sturgis	2	0	0	2	0
Tunnel Hill	38	30	0	8	2,875
Tunnel Hill, North	2	0	0	2	0
Uniontown	6	6	0	0	249
Utica	9	5	0	4	78
Utley	16	12	0	4	1,358
Victoria School	2	0	0	2	0
Wabash Is.	2	1	0	1	71
Waverly	5	1	0	4	600
Whitesville	4	1	1	2	4
Whitesville, Northwest	2	2	0	0	7
Miscellaneous	22	5	1	16	220
Total	458	276	20	162	19,325

WESTERN KENTUCKY
Wildcat Completions by Counties

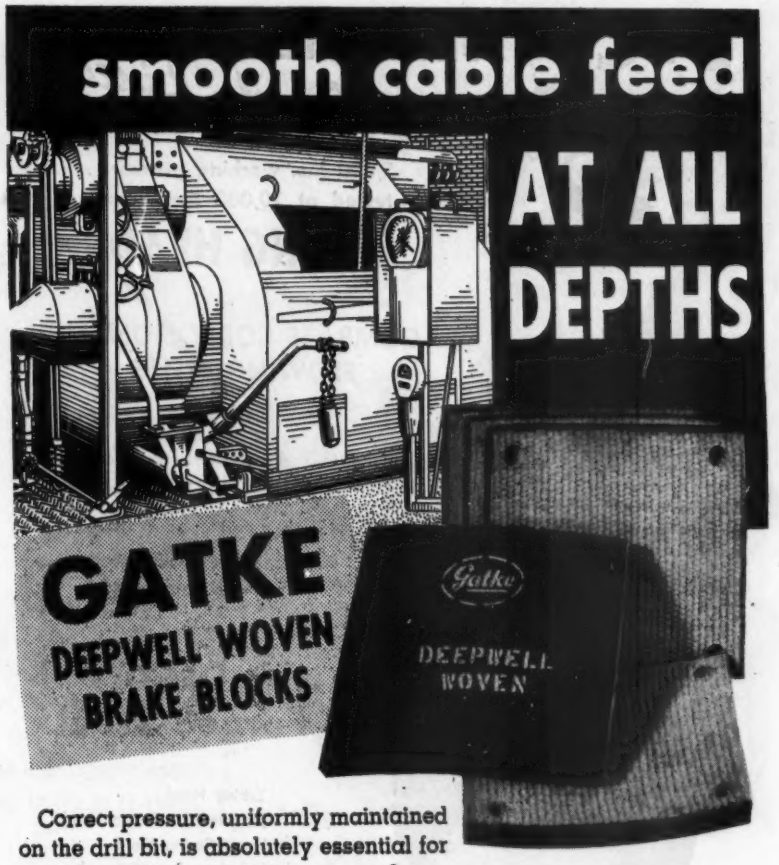
County—	Comp.	Oil	Gas	Dry	Footage
Butler	2	0	0	2	901
Daviess	13	1	2	10	18,999
Fulton	1	0	0	1	1,900
Hancock	1	0	0	1	1,280
Henderson	31	4	0	27	82,800
Hopkins	7	1	0	6	19,212
Logan	5	1	0	4	2,759
McLean	3	2	0	1	4,578
Muhlenburg	1	0	0	1	1,235
Ohio	8	2	1	5	10,529
Todd	2	0	0	2	2,768
Union	5	0	0	5	14,009
Warren	1	0	0	1	900
Webster	13	1	0	12	36,371
Total	93	12	3	78	198,241

EASTERN KENTUCKY
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	7	0	6	1	15,972
February	10	0	9	1	26,870
March	11	0	9	2	29,314
April	8	0	5	3	23,5[illegible]
May	15	0	10	5	40,420
June	11	0	9	2	24,14[illegible]
July	9	0	9	0	24,56
August	7	0	6	1	19,923
September	15	0	11	4	27,983
October	4	0	4	0	12,176
November	5	1	3	1	10,
December	7	0	6	1	21,430
Total	109	1	87	21	277,079

OHIO
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	5	0	0	5	18,780
February	2	0	0	2	7,665
March	9	0	1	8	29,998
April	3	0	0	3	10,491
May	2	0	1	1	6,795
June	6	0	0	6	24,300



Correct pressure, uniformly maintained on the drill bit, is absolutely essential for straight drilling at maximum speed.

That's another reason why GATKE DEEPWELL Brake Lining is so popular with drilling crews.

AVOID SUBSTITUTES

Your Rig Manufacturer can supply GATKE Brake Lining that is engineered for the application.

BRAKE LININGS
CLUTCH FACINGS
MOULDED FRICTIONS

MOULDED FABRIC BEARINGS for difficult and unusual applications

GATKE CORPORATION
228 N. La Salle St., Chicago 1, Ill.

Month—	Comp.	Oil	Gas	Dry	Footage
July	4	0	0	4	16,906
August	3	0	0	3	9,617
September	4	0	2	2	12,736
October	4	0	0	4	13,573
November	7	0	3	4	23,953
December	2	0	1	1	6,820
Total	51	0	8	43	181,634

OHIO

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	103	25	47	31	302,397
February	79	15	42	22	251,209
March	101	30	46	25	281,382
April	99	24	40	35	272,431
May	90	15	45	30	245,627
June	102	25	46	31	309,283
July	136	25	65	46	375,605
August	110	28	46	36	321,442
September	135	26	45	64	352,076
October	111	34	40	37	303,305
November	154	42	47	65	400,488
December	106	18	38	50	316,170
Total	1,326	307	547	*472	3,731,415

*Includes 56 service wells.

OHIO

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	108	25	47	36	331,177
February	81	15	42	24	258,874
March	110	30	47	33	311,380
April	102	24	40	38	282,922
May	92	15	46	31	252,422
June	108	25	46	37	333,583
July	140	25	65	50	392,511
August	113	28	46	39	331,059
September	139	26	47	66	364,812
October	115	34	40	41	316,878
November	161	42	50	69	424,441
December	106	18	39	51	322,990
Total	1,377	307	555	*515	3,913,049

*Includes 56 service wells.

OHIO

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Ashland	206	36	81	89	405
Brush Creek	171	65	47	59	1,353
Cambridge	239	49	94	96	804
Eastern	4	1	0	3	3
Findlay	4	0	2	2	0
Lancaster	189	52	72	65	1,989
Lima	2	2	0	0	36
Mt. Vernon	89	26	34	29	927
Sandyville	221	1	191	29	22
Stewart	145	75	26	44	1,810
Service wells	56	0	0	56	0
Total	1,326	307	547	472	7,339

INDIANA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	10	3	0	7	16,329
February	5	1	0	4	11,432
March	4	0	1	3	4,853
April	17	2	0	15	32,863
May	14	3	0	11	24,138
June	4	1	0	3	7,848
July	22	4	2	16	44,533
August	12	2	1	9	18,231
September	12	1	1	10	26,001
October	26	3	1	22	41,329
November	16	1	1	14	28,137
December	14	3	0	11	30,626
Total	156	24	7	125	286,320

INDIANA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	27	20	2	5	49,980
February	45	26	7	12	70,615
March	49	26	3	20	93,297
April	41	18	2	21	77,725
May	27	15	0	12	50,497
June	57	25	1	31	103,529
July	39	19	1	19	60,893
August	39	15	4	20	65,886
September	44	35	2	7	82,553
October	56	30	2	24	88,268
November	44	27	3	14	71,408
December	57	32	1	24	105,128
Total	525	288	28	209	919,779

INDIANA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	37	23	2	12	66,309
February	50	27	7	16	80,032
March	53	26	4	23	100,165
April	58	20	2	36	110,588
May	41	18	0	23	74,635
June	61	26	1	34	111,377
July	61	23	3	35	105,426
August	51	17	5	29	84,117
September	56	36	3	17	108,554
October	82	33	3	46	129,597
November	60	28	4	28	99,545
December	71	35	1	35	135,754
Total	681	312	35	334	1,206,099

INDIANA

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Barrett-Mitchel	2	1	0	1	65
Cannelburg	5	1	0	4	430
Caborn	2	0	0	2	0
Cato	2	1	0	1	28
Coe	4	0	0	4	0
Dodds Bridge	20	11	0	9	1,107
Evansville	32	18	0	14	1,150
Farmersville	10	6	0	4	216
Fleener	19	9	0	10	1,018
Francisco	2	1	0	1	25
Francisco, West	10	4	0	6	597
Grand Rapids	8	7	0	1	675
Greensburg	4	0	4	0	0
Griffin	15	13	0	2	733
Hatfield	5	3	0	2	120
Horton	20	8	1	11	178
Iva	2	1	0	1	15
Jeffries	11	7	0	4	418
Keensburg Cons.	5	3	0	2	163

DECO FORGED STEEL

Stainless Steel Lined

5,000 lbs. working pressure . . . tested at 10,000 lbs. pressure.

TUBING HEAD

COMBATS CORROSION IN FLOWING WELLS

- Stainless steel lined bonnet.
- Stainless steel lined body.
- Polish joint tubing hanger.
- Stainless steel hanger ring with metal to metal seal.

DECO Forged Steel

Tubing Head
Intermediate Casing Head
Lower Casing Head
(All three have integral forged flanges.)

Flanged Pad Tee
Bottom Hole Test Adapter

DeCo oil field equipment sold through leading supply stores.

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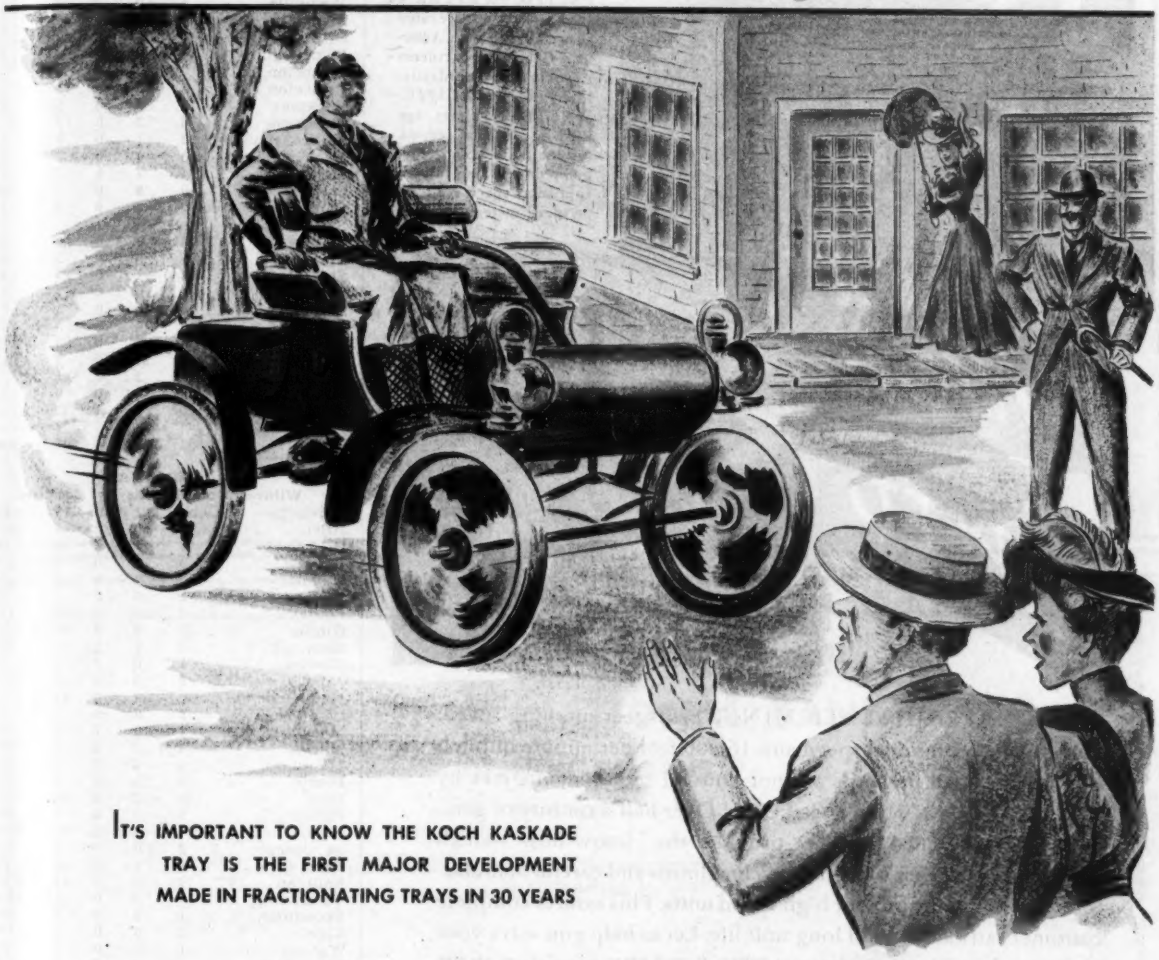
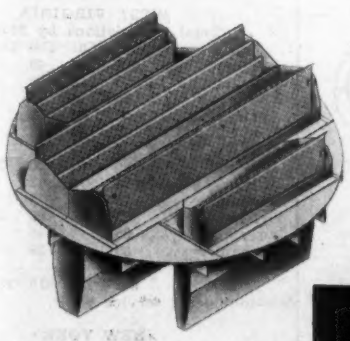
Steel Fabricating—DeCo Forged Steel Well Head Equipment—DeCo Power Slips—Forgings

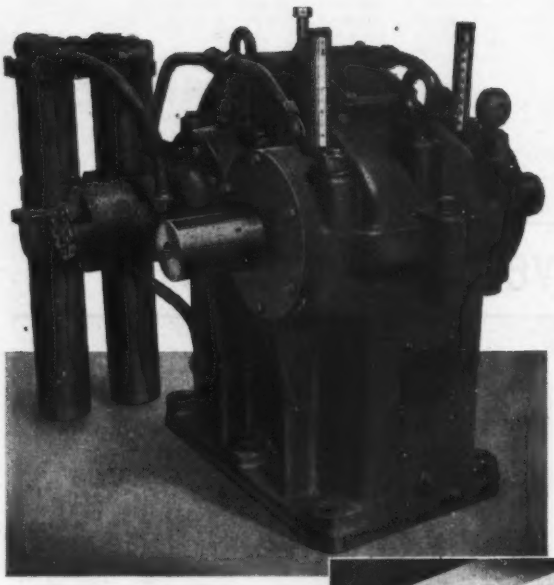
fractionating trays have changed, too....



IT'S IMPORTANT TO KNOW THE KOCH KASKADE TRAY IS THE FIRST MAJOR DEVELOPMENT MADE IN FRACTIONATING TRAYS IN 30 YEARS



Compared to the standard type bubble tray, the Koch Kaskade Tray has 35% to 50% greater capacity, approximately 25% better efficiency, and is less subject to surging and flooding. Plant tests have proved the Koch Kaskade Fractionating Tray to be the best commercial device for vapor-liquid contacting, also a most excellent device for liquid-liquid contacting.



Here is a typical PACIFIC-WESTERN High Speed Unit which is available in a wide variety of sizes covering a complete range of ratios and capacities. This unit is fully enclosed and has integral lubricating and cooling systems. PACIFIC-WESTERN High Speed Units are rated in accordance with American Gear Manufacturers Association standards. Many such PACIFIC-WESTERN Units are used in pipe-line service, turbine, fan and centrifugal pump drives. They may be applied as speed reducers or speed increasers.

THREE MILES PER MINUTE of gear meshing speed; 36,000 RPM rotational speed and 16,000 feet per minute of pitch line velocity and upwards are not unusual requirements met by PACIFIC-WESTERN High Speed Units. Over half a century of gear-making at PACIFIC-WESTERN provides the "know-how" which determines the precise tolerances, close limits and careful manufacture which is built into our high speed units. This assures complete customer satisfaction and long unit life. Let us help you solve your high speed problems. Consult PACIFIC-WESTERN specialists NOW.

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PACIFIC-WESTERN

GEAR PRODUCTS

483

Field—	Comp.	Oil	Gas	Dry	Prod.
Martin	6	6	0	0	422
Mt. Carmel	39	22	0	17	2,218
Mt. Carmel, E.	10	7	0	3	808
New Boston	2	1	0	1	4
New Harmony	9	8	0	1	886
New Harmony, East	5	3	0	2	340
New Harmony, South	18	14	0	4	1,634
Ogle Gas	2	0	1	1	0
Old Trenton	2	1	1	0	25
Oliver Gas	5	0	5	0	0
Orville	3	0	0	3	0
Owensville	4	2	0	2	232
Owensville, N.	15	8	0	7	448
Patoka, East	6	4	0	2	112
Pennville	5	0	3	2	0
Prairie	2	1	1	0	30
Princeton	10	8	0	2	611
Princeton, E.	16	10	0	6	665
Princeton, N.	7	4	0	3	600
Princeton, W.	3	2	0	1	173
Rockport	9	8	0	1	141
Rockford	5	3	0	2	22
St. Francisville	3	1	0	2	6
St. Thomas	13	4	0	2	115
Shelburn	4	1	1	2	2
Solitude	9	6	0	3	353
Springfield	7	4	0	3	154
Springfield Cons.	3	3	0	0	175
Springfield, N.	11	9	0	2	504
Stacer	4	1	0	3	240
Sullivan	4	0	0	4	0
Sullivan Gas	3	0	0	3	0
Trenton	14	4	5	5	442
Troy	9	6	0	3	153
Union Bowman	44	31	5	8	1,424
Upton	3	2	0	1	50
Wheeling	3	3	0	0	180
Miscellaneous	30	7	1	22	157
Total	525	288	28	209	20,264

INDIANA

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Allen	1	0	0	1	3,517
Crawford	1	1	0	0	995
Daviess	5	0	0	5	3,707
Dubois	2	0	0	2	1,943
Elkhart	1	0	0	1	565
Fontain	2	0	0	2	4,228
Gibson	33	9	0	24	74,102
Hamilton	5	0	1	4	4,856
Harrison	1	0	0	1	745
Jay	2	0	1	1	2,15[illegible]
Knox	15	2	0	13	36,648
La Porte	1	0	0	1	525
Marion	1	0	1	0	963
Martin	3	0	0	3	1,194
Miami	4	4	0	0	3,612
Perry	4	0	1	3	2,525
Pike	12	2	0	10	18,349
Porter	1	0	0	1	1,115
Posey	27	4	0	23	70,551
St. Joseph	2	0	0	2	2,125
Spencer	4	0	0	4	4,695
Sullivan	16	0	3	13	27,571
Vanderburg	7	2	0	5	12,442
Vermillion	1	0	0	1	1,020
Vigo	3	0	0	3	4,294
Wabash	1	0	0	1	876
Washington	1	0	0	1	1,000
Total	156	24	7	125	286,320

WEST VIRGINIA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	74	12	49	13	212,761
February	74	4	56	14	220,425
March	59	1	46	12	159,924
April	52	7	37	8	159,243
May	62	11	44	7	162,141
June	74	6	59	9	190,571
July	95	11	60	24	237,849
August	78	9	63	6	224,648
September	79	14	52	13	199,380
October	105	20	60	25	258,665
November	65	7	45	13	189,083
December	65	11	39	15	172,901
Total	882	113	610	*157	2,387,591

*Includes 2 service wells.

NEW YORK

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	99	50	0	49	158,449

AMERADA PETROLEUM CORPORATION

PRODUCERS OF OIL AND GAS

Beacon Bldg.
Tulsa, Oklahoma

120 Broadway
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417 So. Hill Street
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WHITNEY NATIONAL BANK

OF NEW ORLEANS

ESTABLISHED 1883

REPORT TO COMPTROLLER OF CURRENCY (CONDENSED)
AS OF DECEMBER 31, 1947

ASSETS		LIABILITIES		
Cash and Due from Banks	$ 95,775,980.99	Deposits		$337,362,820.30
U. S. Government Obligations	141,980,306.09	Acceptances		1,801,449.48
State, Municipal and Other Public Bonds	25,499,376.66	Dividend Payable January 2, 1948		84,000.00
Other Bonds and Securities	452,042.58	Reserve for Taxes and Accrued Interest and Expenses		1,040,302.21
Loans and Discounts	86,917,803.54	Other Liabilities		50,641.07
Bank Premises	3,046,240.33	Capital Stock	$2,800,000.00	
Other Real Estate	39,575.49	Surplus	9,200,000.00	
Customers' Liability Account of Acceptances	1,403,304.82	Undivided Profits	3,719,754.08	15,719,754.08
Accrued Income Receivable and Other Assets	944,336.64			
TOTAL	$356,058,967.14	TOTAL		$356,058,967.14

DEPOSITARY OF THE UNITED STATES GOVERNMENT, STATE OF LOUISIANA AND CITY OF NEW ORLEANS
MEMBER OF THE FEDERAL DEPOSIT INSURANCE CORPORATION

It Pays to Standardize on Clark—the Complete Line of Steam Traps!

40 YEARS OF EXPERIENCE PROVE THAT CLARK CONTROLS

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If your production costs have been going up (and whose haven't) Clark can help you "hold the price line." The Heavier, Stronger construction of CLARK Controls makes for longer life and less frequent replacement. Our Engineering Department stands ready to help you on all fluid control problems.

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Write today for this free, helpful guide to more economical controls for your oil, steam and air lines.

THE CLARK MANUFACTURING CO.
1834 East 38th Street • Cleveland 14, Ohio

Clark
FLUID CONTROLS

Month—	Comp.	Oil	Gas	Dry	Footage
February	82	41	0	41	119,000
March	78	39	0	39	113,049
April	86	43	0	43	123,992
May	152	82	0	70	227,141
June	157	85	0	72	224,111
July	194	98	0	96	259,266
August	202	101	0	101	289,000
September	122	61	0	61	177,686
October	180	90	0	90	252,196
November	101	51	0	50	146,363
December	78	39	0	39	113,104
Total	1,531	780	0	*751	2,203,356

*Includes 751 service wells.

PENNSYLVANIA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	245	126	23	96	372,670
February	208	99	17	92	339,755
March	204	103	13	88	320,544
April	235	120	17	98	355,179
May	282	146	29	107	456,942
June	273	149	17	107	415,795
July	282	142	26	114	450,957
August	339	168	26	145	538,561
September	316	157	24	135	497,921
October	333	169	29	135	520,283
November	292	142	27	123	457,223
December	229	115	22	92	385,006
Total	3,238	1,636	270	1,332*	5,110,836

*Includes 1,263 service wells.

MICHIGAN

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	43	1	1	41	106,643
February	10	0	0	10	24,611
March	16	1	0	15	27,719
April	10	2	0	8	26,993
May	22	2	1	19	51,630
June	20	1	0	19	44,310
July	19	0	1	18	42,552
August	28	1	0	27	67,525
September	20	2	0	18	50,869
October	35	3	0	32	77,910
November	35	3	3	29	75,434
December	17	1	0	16	44,964
Total	275	17	6	252	641,160

MICHIGAN

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	63	17	9	37	120,773
February	14	10	1	3	31,247
March	21	7	2	12	48,551
April	30	14	1	15	68,675
May	61	23	2	36	116,058
June	57	30	0	27	108,597
July	84	44	5	35	162,811
August	71	39	5	27	143,010
September	64	32	8	24	133,539
October	76	40	7	29	160,002
November	58	25	5	28	121,343
December	35	14	4	17	79,125
Total	634	295	49	*290	1,293,711

*Includes 140 service wells.

MICHIGAN

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	106	18	10	78	227,416
February	24	10	1	13	55,858
March	37	8	2	27	76,270
April	40	16	1	23	95,668
May	83	25	3	54	167,688
June	77	31	0	46	152,907
July	103	44	6	53	205,363
August	99	40	5	54	210,535
September	84	34	8	42	184,389
October	111	43	7	61	237,912
November	93	28	8	57	196,777
December	52	15	4	33	124,089
Total	909	312	55	*542	1,934,872

*Includes 140 service wells.

MICHIGAN

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Adams & North	6	4	0	2	91
Arbela	22	18	0	4	370

Field—	Comp.	Oil	Gas	Dry	Prod.
Austin	32	0	0	32	0
Banger & North	3	1	0	2	100
Bloomingdale	6	3	0	3	65
Brenner	8	3	0	5	165
Cato	15	11	0	4	999
Clayton	12	9	0	3	528
Caffee Lake	3	0	0	3	0
Coldwater	12	6	3	3	600
Cranberry Lake	20	0	0	20	0
Dalton	3	2	0	1	38
Day	3	1	0	2	25
Deep River	5	1	0	4	50
Garfield	17	0	11	6	0
Goodwill & South	21	0	0	21	0
Hawkhead	3	0	0	3	0
Hope	5	3	0	2	115
Howell	7	0	7	0	0
Kawkawlin	31	30	0	1	1,379
Kimball Lake	96	88	0	8	99,455
Leaton	4	4	0	0	282
Lincoln	13	0	11	2	0
Marion-Winterfield	81	0	0	81	0
Monterey, West	28	19	0	9	2,835
Mt. Forest	15	13	0	2	960
Norwich, East	4	4	0	0	172
Overisel and outpost	13	6	0	7	288
Pinconning	4	1	0	3	3,000
Rockford	12	7	0	5	1,587
Rolland	3	0	0	3	0
Roscommon	3	0	2	1	0
Rose City	4	3	0	11	145
Salem, New	4	2	0	2	10
Salem, South	4	0	0	4	0
Sherman	3	0	2	1	0
Six Lakes	3	0	2	1	0
Stony Lake	27	26	0	1	12,599
Turk Lake	6	0	3	3	0
Walker	11	11	0	0	288
Zeeland, North	6	0	4	2	0
Miscellaneous	56	19	4	33	1,390
Total	634	295	49	*290	127,526

*Includes 140 storage wells.

MICHIGAN

Wildcat Completions by Counties

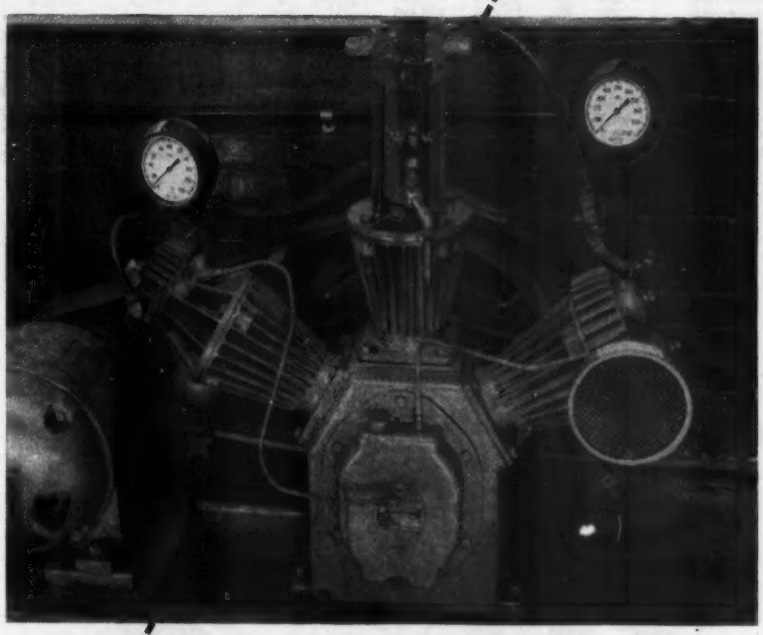
County—	Comp.	Oil	Gas	Dry	Footage
Allegan	58	6	0	52	86,629
Arenac	11	0	0	11	33,784
Barry	3	0	0	3	6,255
Bay	7	1	0	6	20,817
Clare	5	0	0	5	13,303
Gratiot	6	0	0	6	12,647
Ionia	5	1	0	4	14,987
Isabella	15	0	0	15	51,809
Kalamazoo	3	0	0	3	4,668
Kent	14	0	0	14	32,107
Lake	7	0	0	7	23,676
Mecosta	13	0	2	11	35,569
Midland	5	1	0	4	19,261
Montcalm	14	0	1	13	32,904
Muskegon	5	0	0	5	9,356
Newaygo	18	3	1	14	44,979
Oceana	9	1	0	8	19,187
Ogemaw	3	0	0	3	8,218
Osceola	7	1	0	6	23,064
Ottawa	15	1	0	14	26,286
Roscommon	4	0	1	3	17,621
Saginaw	3	0	0	3	9,005
St. Clair	3	0	1	2	1,702
Tuscola	4	0	0	4	11,534
Van Buren	12	1	0	11	14,087
Miscellaneous	26	1	0	25	67,705
Total	275	17	6	252	641,160

ILLINOIS

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	43	8	0	35	104,312
February	25	4	0	21	60,614
March	29	2	0	27	72,454
April	19	1	0	18	51,809
May	55	11	0	44	141,376
June	44	13	0	31	110,552
July	55	12	0	43	139,986
August	46	18	1	27	109,434
September	48	13	1	34	115,009
October	62	12	1	49	147,202
November	59	10	0	49	164,196
December	36	4	0	32	93,389
Total	521	108	3	410	1,310,333

Here's how HELICOID GAGES

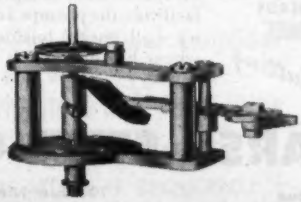


PAY OFF!

On a compressor like this, where you have vibration and rapid pressure pulsations, ordinary gages with clock gear movements last but a short time. Sometimes the gears are worn out in a few weeks.

By comparison, Helicoid gages wear for years. Actually, the gages shown here have been in service for 2½ years and are still going strong.

This is an example of the saving in maintenance which can be made by using Helicoid—the gage of enduring accuracy.



Only Helicoid gages have Helicoid movement

ACCO

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HELICOID GAGE DIVISION
AMERICAN CHAIN & CABLE

ILLINOIS

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	103	78	0	25	259,374
February	106	75	0	31	273,814
March	157	105	0	52	409,025
April	101	69	0	32	274,002
May	94	68	0	26	242,484
June	119	76	2	41	323,520
July	128	79	0	49	322,217
August	163	78	0	85	422,857
September	156	88	1	67	396,286
October	129	83	0	46	340,408
November	150	88	3	59	406,762
December	106	59	1	46	269,496
Total	1,512	946	7	559	3,940,245

ILLINOIS

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	146	86	0	60	363,686
February	131	79	0	52	334,428
March	186	107	0	79	481,479
April	120	70	0	50	325,811
May	149	79	0	70	383,860
June	163	89	2	72	434,072
July	183	91	0	92	462,203
August	209	96	1	112	532,291
September	204	101	2	101	511,295
October	191	95	1	95	487,610
November	209	98	3	108	570,958
December	142	63	1	78	362,885
Total	2,033	1,054	10	969	5,250,578

ILLINOIS

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Albion, East	7	4	0	3	272
Allendale	62	23	0	39	897
Amity	2	1	0	1	38
Bartelso	4	3	0	1	44
Bartelso, West	7	3	0	4	310
Beaver Creek, South	6	3	0	3	36
Belle Prairie	2	1	0	1	96
Beman	2	1	0	1	9
Beman, East	5	2	0	3	97
Berryville	11	5	0	6	2,413
Bible Grove	7	5	0	2	114
Bible Grove, North	5	3	0	2	93
Bonnas	2	1	0	1	21
Bone Gap, South	6	3	0	3	825
Boos, East	12	7	0	5	1,267
Boos, North	9	4	0	5	421
Boyd	4	4	0	0	93
Boyleston Consolidated	3	2	0	1	48
Browns	26	19	0	7	2,564
Browns, East	35	28	0	7	3,185
Browns, South	4	3	0	1	390
Bungay Consolidated	10	5	0	5	259
Burnt Prairie, South	2	1	0	1	43
Calhoun Consolidated	10	7	0	3	909
Calvin, North	5	1	0	4	100
Casey	2	0	0	2	0
Centralia	7	5	0	2	253
Cisne	2	2	0	0	54
Clarksburg	2	1	0	1	7
Clay City Cons.	122	80	0	42	9,107
Concord	24	23	0	1	2,643
Concord, Central	6	4	0	2	215
Cook Mills, N.	2	0	0	2	0
Covington, E.	4	2	0	2	62
Cowling	3	3	0	0	390
Dale-Hoodville Cons.	19	15	0	4	1,146
Dix	12	10	0	2	394
Dubois	5	0	4	1	0
Dubois, West	3	0	0	3	0
Dundas Cons.	12	7	0	5	381
Dupo	2	2	0	0	27
Eberle	4	4	0	0	369
Elliottstown	4	1	0	3	62
Epworth, East	3	3	0	0	83
Ewing	5	0	0	5	0
Flatrock	4	1	0	3	5
Frankfort, Southwest	5	4	0	1	279
Friendsville, Central	4	3	0	1	32
Friendsville, South	3	0	0	3	0
Geff, West	6	3	0	3	145
Golden Gate Cons.	2	1	0	1	15
Grayville	7	4	0	3	312
Helena	5	3	0	2	78
Herald	41	25	1	15	1,646
Herald, East	28	21	0	7	1,830
Hoosier, North	3	3	0	1	234
Ingraham, W.	3	1	0	2	30
Inman	2	1	0	1	46
Inman, North	33	21	0	12	1,093
Inman, West	7	5	0	2	245
Iola	5	4	0	1	41
Irvington	3	1	0	2	14
Iuka	4	0	0	4	0
Johnson, North	8	3	0	5	12
Johnson, South	2	1	0	1	20
Johnsonville Cons.	4	1	0	3	17
Johnsonville, South	16	11	0	5	795
Johnsonville, West	8	3	0	5	251
Keensburg Cons.	21	14	0	7	548
Keensburg, E.	2	0	0	2	0
Keenville	11	5	0	6	411
Kenner	4	2	0	2	73
Kenner, North	28	22	0	6	3,493
Kenner, West	20	18	0	2	2,389
Lancaster, East	4	1	0	3	150
Lancaster, Central	10	8	0	2	1,543
Lawrence	27	15	0	12	501
Leech Cons.	7	4	0	3	300
Lexington	17	7	0	10	1,585
Lillyville	7	4	0	3	604
Louden	12	4	2	6	147
Main	8	3	0	5	33
Maple Grove	9	4	0	5	505

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WICHITA • TULSA • OMAHA • DALLAS • DENVER • COLORADO SPRINGS

Field—	Comp.	Oil	Gas	Dry	Prod.
Marine	29	24	0	5	2,143
Markham City	3	3	0	0	274
Markham City, West	3	1	0	2	57
Massilon	4	1	0	3	72
Mason, South	3	2	0	1	382
Mattoon	27	21	0	6	1,618
Maud	2	1	0	1	200
Maud, North	11	7	0	4	313
Miletus	13	10	0	3	396
Mill Shoals	21	15	0	6	2,027
Mt. Carmel	15	11	0	4	481
Mt. Erie, North	4	1	0	3	50
Mt. Erie, South	15	11	0	4	657
New Harmony-Griffen Cons.	58	50	0	8	3,689
New Haven, West	4	2	0	2	137
New Hebron	2	2	0	0	3
Newton	3	1	0	2	14
Noble	4	2	0	2	130
Noble, North	15	13	0	2	3,410
Olney	11	4	0	7	942
Parkersburg Cons.	31	30	0	1	3,346
Passport	5	3	0	2	935
Patton, West	15	7	0	8	383
Phillipstown Cons.	11	7	0	4	265
Raymond	2	0	0	2	0
Roland	9	4	0	5	280
Rural Hill	27	24	0	3	3,296
Sailor Springs Cons.	44	33	0	11	8,658
Salem	2	0	0	2	0
Schnell	3	2	0	1	313
Sesser	12	9	0	3	568
Shattuc	9	5	0	4	102
Shelbyville	3	1	0	2	9
Siggins	5	2	0	3	43
Sims	2	1	0	1	30
Sorrento	2	1	0	1	12
Stanford, S.	3	1	0	2	14
Stanford, W.	4	2	0	2	55
Stokes-Brownsville	11	7	0	4	561
Storms	12	6	0	6	468
Thackeray	5	5	0	0	214
Tonti	3	2	0	1	135
Trumbull	6	2	0	4	141
West End	2	1	0	1	91
Westfield	6	1	0	5	4
Westfield, E.	6	3	0	3	34
West Frankfort	7	4	0	3	431
West Frankfort, South	11	9	0	2	1,327
Willow Hill Cons.	51	31	0	20	3,714
Willow Hill, E.	5	2	0	3	285
Woburn, South	5	4	0	1	273
Woodlawn	14	8	0	6	600
Miscellaneous	51	16	0	35	598
Total	1,512	946	7	559	73,523

ILLINOIS

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Bond	9	3	0	6	18,162
Brown	1	0	0	1	835
Clark	20	1	0	19	16,540
Clay	39	13	0	26	117,242
Clinton	13	3	0	10	18,247
Coles	10	0	0	10	17,228
Crawford	4	1	0	3	7,808
Cumberland	10	0	0	10	21,251
Douglas	3	0	0	3	1,897
Edgar	8	1	0	7	5,860
Edwards	27	7	0	20	86,418
Effingham	16	6	0	10	43,377
Fayette	14	0	0	14	29,961
Franklin	8	3	0	5	21,921
Gallatin	30	9	1	20	81,321
Hamilton	18	1	0	17	61,980
Hancock	6	0	0	6	5,150
Jasper	20	3	0	17	58,006
Jefferson	22	3	0	19	61,748
Jersey	1	0	0	1	5,360
Lawrence	25	3	0	22	49,391
Livingston	1	0	0	1	155
Macoupin	3	0	0	3	3,934
McDonough	1	0	0	1	490
Macon	1	0	0	1	2,344
Madison	13	0	0	13	24,899
Marion	22	6	0	16	49,475
Montgomery	5	0	0	5	6,884
Moultrie	1	0	0	1	2,060
Perry	4	0	0	4	6,903

County—	Comp.	Oil	Gas	Dry	Footage
Richland	17	4	1	12	52,354
Saline	6	0	0	6	18,245
Sangamon	1	0	0	1	823
Shelby	15	1	0	14	28,439
Wabash	32	6	0	26	88,938
Washington	7	0	1	6	11,872
Wayne	48	18	0	20	153,898
White	40	16	0	24	128,917
Total	521	108	3	410	1,310,333

CALIFORNIA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	20	3	0	17	95,584
February	27	7	1	19	108,899
March	45	13	1	31	193,721
April	28	12	2	14	157,987
May	35	7	1	27	155,790
June	34	5	2	27	161,036
July	32	8	1	23	172,573
August	22	2	1	19	97,401
September	39	8	1	30	172,338
October	28	1	1	26	112,354
November	25	1	0	24	108,134
December	24	0	1	23	99,777
Total	359	67	12	280	1,635,594

CALIFORNIA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	107	94	6	7	450,129
February	137	124	2	11	614,411
March	158	146	4	8	668,922
April	117	107	2	8	480,084
May	154	148	2	4	666,232
June	149	139	5	5	686,033
July	129	123	3	3	588,878
August	131	119	2	10	552,524
September	144	136	3	5	616,914
October	185	170	3	12	682,287
November	149	134	1	14	579,353
December	134	132	0	2	542,865
Total	1,694	1,572	33	89	7,128,632

THOMAS Flexible COUPLINGS

ALL METAL

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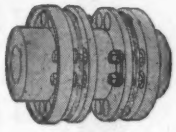
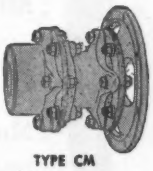
Refiners specify Thomas "Flexible" Couplings for PUMPS, COMPRESSORS, COAL PULVERIZERS, COOLING TOWERS and GENERATOR SETS.



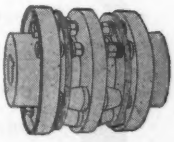
TYPE DBZ-C

Pipe Line Men know that Thomas "Flexible" Couplings on their Low or High Speed Pumps give 100% dependable service.



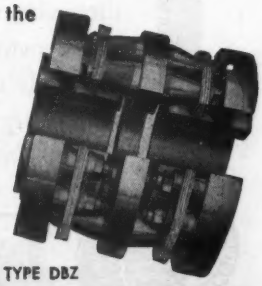
TYPE CM

Drilling Engineers get the most out of their equipment with Thomas "Flexible" Couplings on Engine, Gear and Mud Pump Drives.



TYPE DBZ-B

In the Laboratory Thomas "Flexible" Dynamometer Couplings assure the greatest accuracy.



TYPE DBZ

Thomas Flexible All-Metal Couplings Have No Wearing Parts. BACKLASH, FRICTION and CROSS-PULL ARE ELIMINATED.

NO LUBRICATION IS REQUIRED!

Write for the new Engineering Catalog

THOMAS FLEXIBLE COUPLING CO.

WARREN, PENNSYLVANIA

CALIFORNIA
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	127	97	6	24	545,713
February	164	131	3	30	723,310
March	203	159	5	39	862,643
April	145	119	4	22	638,071
May	189	155	3	31	822,022
June	183	144	7	32	847,069
July	161	131	4	26	761,451
August	153	121	3	29	649,925
September	183	144	4	35	789,252
October	213	171	4	38	794,641
November	174	134	1	38	687,487
December	158	132	1	25	642,642
Total	2,053	1,639	45	369	8,764,226

CALIFORNIA
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Los Angeles Region—					
Athens-Rosecrans	4	4	0	0	676
Aliso-Canyon	5	4	0	1	2,456
Brea-Olinda	24	23	0	1	2,208
Coyote East	11	10	0	1	737
Coyote West	17	17	0	0	2,180
Dominguez	12	12	0	0	2,948
East Los Angeles	3	3	0	0	927
Huntington Beach	119	115	0	4	11,690
Inglewood	6	5	0	1	1,432
Newhall-Potrero	7	7	0	0	3,119
Ramona	24	24	0	0	3,072
Richfield	10	9	0	1	610
Santa Fe Springs	8	7	0	1	1,933
Seal Beach	20	20	0	0	12,444
West Newport	48	44	0	4	7,600
Wilmington	113	113	0	0	72,433
San Joaquin Valley—					
Coalinga	14	14	0	0	2,624
Coalinga Northeast	7	7	0	0	1,288
Coles Levee	17	16	0	1	3,033
Cymric	118	101	0	17	12,533
Elk Hills	13	12	0	1	2,019
Grapevine-Tejon	30	26	0	4	3,466
Jacalitos	21	19	0	2	2,997
Kern Front	38	37	0	1	2,775
Kern River	104	101	0	3	13,044
Kettleman Hills	16	16	0	0	53,011
Lost Hills	97	95	0	2	3,895
Midway-Sunset	59	56	0	3	4,816
Mt. Poso	11	11	0	0	897
Mountain View	24	24	0	0	5,143
Paloma	52	50	0	2	11,090
Premier	5	5	0	0	6,808
Raisin City	6	5	0	1	306
Trico	19	0	19	0	0
South Belridge	31	30	0	1	776
Coastal Region—					
Arroyo Grande	6	6	0	0	565
Cat Canyon	41	41	0	0	10,035
Lompoc	41	39	0	2	6,043
Orcutt	26	25	0	1	2,225
Oxnard	4	4	0	0	299
Padre Canyon	12	12	0	0	3,320
San Miguelito	10	10	0	0	647
Santa Maria Valley	30	27	0	3	2,032
South Mountain	12	12	0	0	3,300
Ventura Avenue	57	57	0	0	19,086
West Mountain	6	6	0	0	543
Miscellaneous	336	291	14	31	31,041
Total	1,694	1,572	33	89	346,822

CALIFORNIA
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Butte	6	0	3	3	26,287
Fresno	16	4	0	12	96,159
Kern	148	38	1	109	644,309
Kings	5	0	0	5	19,102
Los Angeles	30	9	0	21	212,306
Monterey	9	2	0	7	22,560
Orange	17	4	0	13	90,740
San Luis Obispo	7	0	0	7	21,639
Santa Barbara	15	4	0	11	58,510
Solano	16	0	6	10	82,511
Ventura	25	6	0	19	104,804
Yolo	10	0	2	8	55,517
Miscellaneous	55	0	0	55	201,150
Total	359	67	12	280	1,635,594

COLORADO
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	2	0	0	2	5,451
February	3	1	0	2	9,168
March	3	0	0	3	14,213
April	1	0	0	1	954
May	3	0	0	3	3,835
June	8	0	1	7	11,033
July	6	0	0	6	17,557
August	6	1	0	5	23,563
September	5	0	1	4	20,048
October	2	0	1	1	1,475
November	4	0	0	4	11,738
December	8	1	0	7	35,233
Total	51	3	3	45	159,268

COLORADO
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	11	11	0	0	69,956
February	5	5	0	0	32,858
March	15	13	0	2	98,329
April	13	12	0	1	77,533
May	12	10	1	1	77,012
June	12	12	0	0	71,568
July	14	12	2	0	84,210
August	15	15	0	0	96,089
September	13	13	0	0	84,464
October	14	13	1	0	87,284
November	19	18	0	1	116,007
December	15	15	0	0	96,379
Total	158	149	4	5	991,779

COLORADO
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	13	11	0	2	75,407
February	8	6	0	2	42,026

It's a fact!

ONLY CHROMATES CAN MAKE THESE CLAIMS

NO OTHER CHEMICAL has as powerful an inhibitive influence toward the corrosion of iron or steel in the presence of water

NO OTHER CHEMICAL is as effective against bimetallic corrosion.

NO OTHER CHEMICAL provides as satisfactory protection in high-chloride water or brines.

NO OTHER CHEMICAL completely nullifies the corrosive effect of aeration.

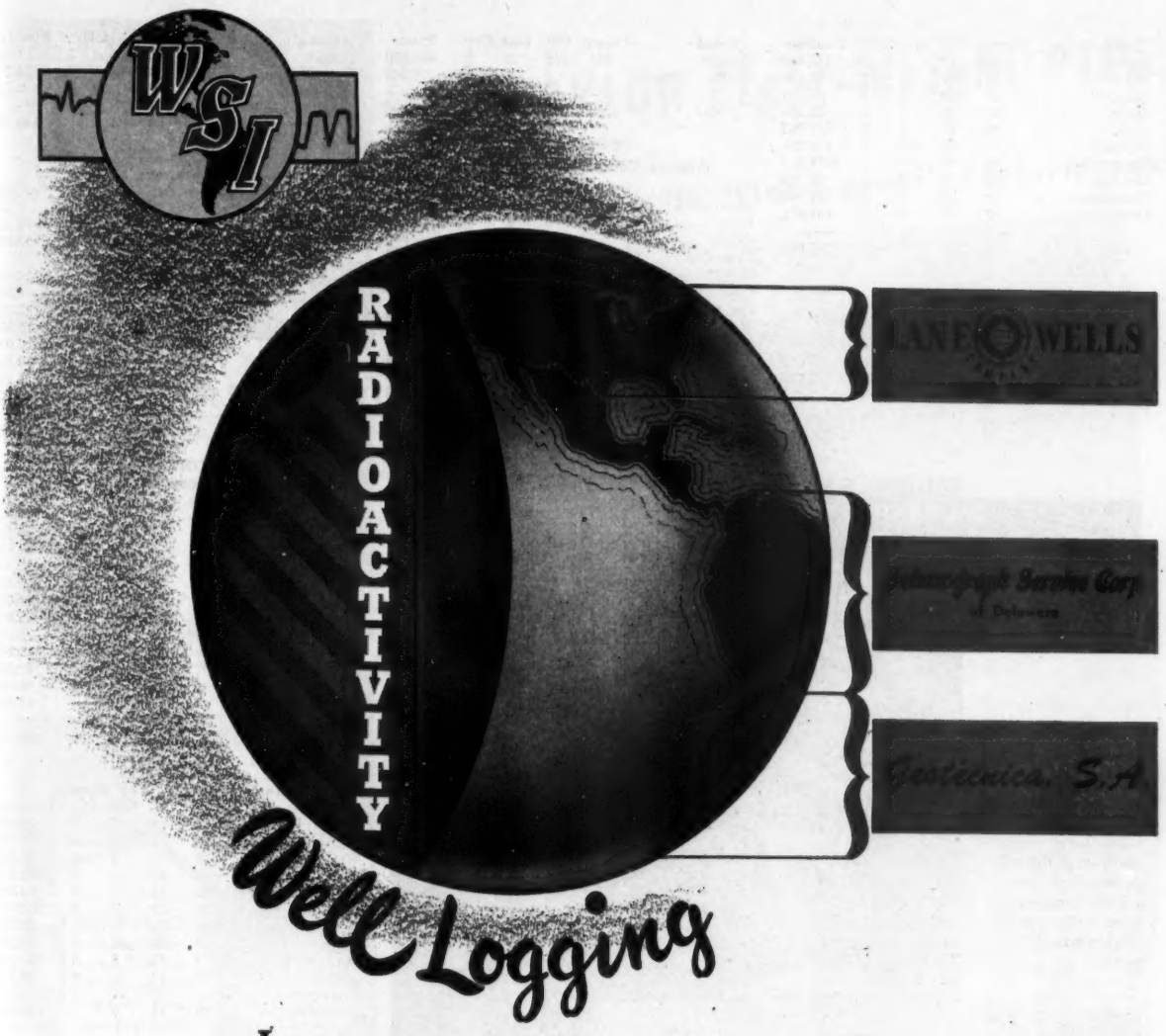
Mutual Chromates are being used to prevent corrosion in an ever-increasing number of applications. In most cases the amount of Chromate is small, and the cost low. As a result Chromates are generally regarded as the most effective and economical corrosion inhibitors.

Mutual Chromium Chemicals are preferred throughout industry because of their high quality and dependable uniformity. Shipments are made from our two complete plants at Baltimore and Jersey City and from dealers' warehouses throughout the United States and Canada.

MUTUAL CHEMICAL CO. OF AMERICA — OVER A CENTURY OF CHROMIUM CHEMICAL PROGRESS

Mutual CHROMIUM CHEMICALS

MUTUAL CHEMICAL COMPANY OF AMERICA, 270 Madison Avenue, New York 16



Well Logging

IN *new* or *old* wells the W.S.I. method of Well Logging provides basic information necessary for the efficient completion, production and maintenance of the well.

The complete records provided by the Gamma Ray Curve, Neutron Curve, and Collar Log can be obtained through several casing strings.

Locations, differentiation and characteristics of formations; the location of fluid, porosity, location of casing seats and liner overlaps are disclosed. The Collar Log recorded simultaneously with the Gamma Ray Curve provides extreme depth accuracy.

Offered only through the above named licensees.

Well Surveys, Inc.

TULSA, OKLAHOMA
U.S.A.

Month—	Comp.	Oil	Gas	Dry	Footage
March	18	13	0	5	112,542
April	14	12	0	2	78,487
May	15	10	1	4	85,847
June	20	12	1	7	82,691
July	20	12	2	6	101,767
August	21	16	0	5	119,654
September	18	13	1	4	104,512
October	16	13	2	1	88,759
November	23	18	0	5	127,745
December	23	16	0	7	131,612
Total	209	152	7	50	1,151,049

COLORADO

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Chromo	1	1	0	0	472
Elk Springs	1	1	0	0	6,338
Hiawatha	2	0	2	0	7,816
Piceance Creek	2	0	2	0	6,590
Rangely	151	146	0	5	964,020
Wilson Creek	1	1	0	0	6,543
Total	158	149	4	5	991,779

COLORADO

Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Archuleta	8	1	0	7	15,039
Baca	2	0	2	0	11,188
Delta	1	0	0	1	683
Fremont	1	0	0	1	460
Huerfano	7	0	0	7	11,193
Las Animas	2	0	0	2	2,834
La Plata	2	0	0	2	6,941
Mesa	1	0	0	1	585
Moffat	6	2	0	4	34,210
Montezuma	4	0	0	4	3,605
Ouray	3	0	1	2	1,782
Pitkin	1	0	0	1	4,453
Prowers	3	0	0	3	17,463
Pueblo	2	0	0	2	1,896
Rio Blanco	7	0	0	7	44,356
Miscellaneous	1	0	0	1	2,780
Total	51	3	3	45	159,268

MONTANA

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	3	0	0	3	7,768
February	1	0	0	1	3,375
March	4	0	0	4	13,001
April	0	0	0	0	0
May	3	1	0	2	8,029
June	3	1	1	1	8,823
July	4	0	2	2	12,974
August	5	1	2	2	16,369
September	6	3	0	3	16,016
October	4	0	1	3	10,594
November	5	0	2	3	8,179
December	4	1	0	3	19,052
Total	42	7	8	27	124,180

MONTANA

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	11	4	7	0	20,893
February	12	1	10	1	18,322
March	8	3	5	0	12,035
April	14	10	1	3	32,544
May	19	12	5	2	35,280
June	31	21	8	2	61,021
July	22	14	2	6	46,828
August	37	21	11	5	76,196
September	27	14	8	5	49,246
October	27	12	10	5	45,053
November	35	22	9	4	66,959
December	24	11	9	4	41,038
Total	267	145	85	37	505,415

MONTANA

Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	14	4	7	3	28,661
February	13	1	10	2	21,697
March	12	3	5	4	25,036
April	14	10	1	3	32,544
May	22	13	5	4	43,309
June	34	22	9	3	69,844
July	26	14	4	8	59,802
August	42	22	13	7	92,565
September	33	17	8	8	65,262
October	31	12	11	8	55,647
November	40	22	11	7	75,138
December	28	12	9	7	60,090
Total	309	152	93	64	629,595

MONTANA

Development Completions by Fields

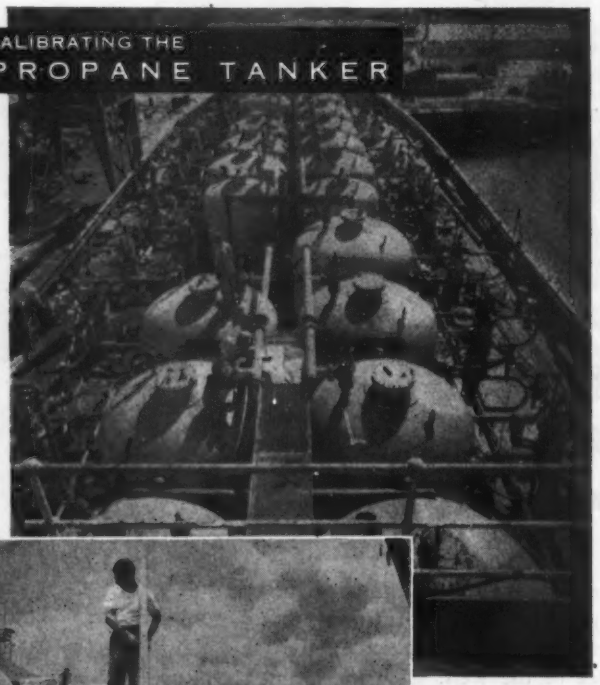
Field—	Comp.	Oil	Gas	Dry	Prod
Bowes	1	0	1	0	1,137
Bowdoin	47	0	43	4	46,678
Box Elder	1	0	1	0	1,294
Cat Creek	12	9	0	3	21,766
Cedar Creek	19	0	17	2	23,216
Cut Bank	78	57	12	9	230,023
Devil's Basin	1	0	0	1	1,317
Elk Basin	1	1	0	0	5,761
Hardin	4	0	4	0	3,643
Kevin-Sunburst	86	66	6	14	144,656
Kicking Horse	1	0	1	0	2,040
Midway	1	1	0	0	1,766
Mosser	5	4	0	1	5,092
Pondera	9	7	0	2	17,415
Six Shooter	1	0	0	1	401
Total	267	145	85	37	506,105

MONTANA

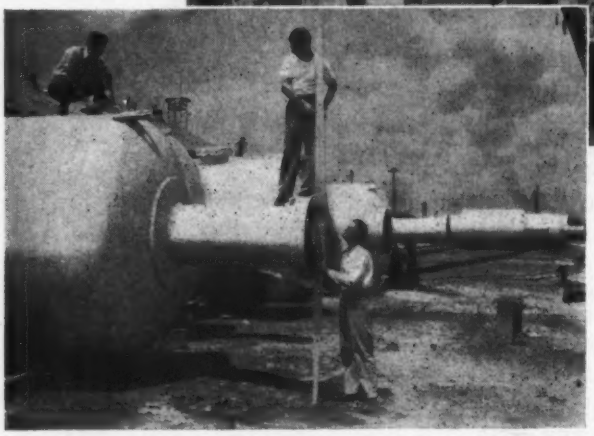
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Blaine	1	0	0	1	4,811
Carbon	3	2	0	1	12,326
Fergus	3	0	0	3	7,884
Glacier	6	2	0	4	20,179
Hill	1	0	1	0	693
Jefferson	3	0	0	3	6,109
Liberty	7	0	4	3	22,506
Petroleum	1	0	0	1	2,708
Phillips	2	0	0	2	10,603
Pondera	2	1	0	1	4,219
Stillwater	1	0	0	1	4,118
Sweetgrass	1	0	1	0	632
Teton	1	0	0	1	3,531
Toole	6	2	2	2	11,848

CALIBRATING THE FIRST PROPANE TANKER



S/S NATALIE O. WARREN — Looking forward of the pilot house on the first ocean-going vessel constructed for sole purpose of transporting propane . . . tanks calibrated by Chas. Martin & Company.



MARTIN MEN—Calibrating the specially designed tanks which were fitted into the S/S Natalie O. Warren are, left to right, C. L. Riggs, L. M. Hoog and C. M. Brabham, Chas. Martin & Company, Port Arthur, Texas.

For more than 50 years, Chas. Martin & Company has been strapping and calibrating tanks and tank vessels. We are proud that Warren Petroleum Corporation selected us for this job . . . of calibrating tanks on this vessel, a milestone in petroleum transportation.

CHAS. MARTIN & COMPANY

INSPECTORS OF PETROLEUM

APPROVED & LICENSED BY NEW YORK PRODUCE EXCHANGE

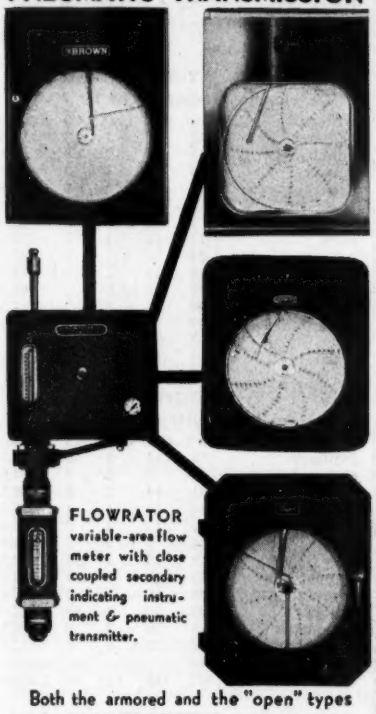
NEW YORK—BRANCH OFFICES AT ALL U. S. OIL PORTS

FOREIGN PORTS MEXICO, CUBA, ARUBA, CURACAO, VENEZUELA, TRINIDAD, SAUDI ARABIA

ANY MAKE OF INSTRUMENT ON YOUR PANEL BOARD CAN OPERATE FROM

FLOWRATOR METERS

BY PNEUMATIC TRANSMISSION



FLOWRATOR variable-area flow meter with close coupled secondary indicating instrument & pneumatic transmitter.

Both the armored and the "open" types of FLOWRATOR instruments for measuring fluid flows are available with pneumatic transmitters used to actuate the remote receivers made by any of the better-known instrument manufacturers. No coordination of the instruments before shipping is necessary. All you need to do is connect the air lines and adjust one screw in the transmitter till the readings of transmitter and receiver agree.

The F & P pneumatic transmitter is the most modern and simple available. Both the pilot and the relay valve are built together as one single unit. That is why the transmitter case is so small though it includes a full 5" long indicator scale.

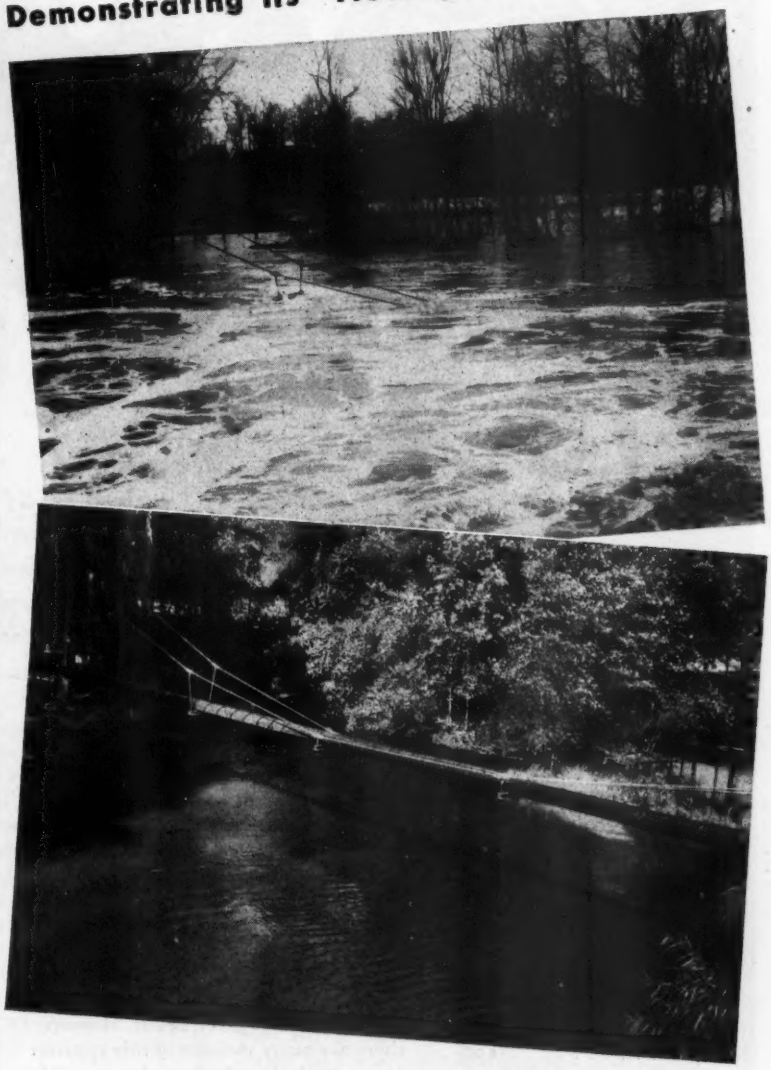
SEND FOR CATALOG 55 FOR DETAILS OF F&P PNEUMATIC TRANSMITTERS.

FISCHER & PORTER CO.
DEPT. 8L-3E HATBORO, PA.

FLOWRATOR

It's NAYLOR Light-Weight PIPE

Demonstrating Its "Flood-proof" Performance



This photographic record shows how a line of Naylor light-weight pipe even takes floods in stride. The extra strength provided by the exclusive Naylor Lockseam Spiralweld enabled this line to take the pounding of flood waters as shown in the upper picture and come through unscathed as shown in the lower view.

NAYLOR PIPE COMPANY
1232 East 92nd Street • Chicago 19, Illinois
New York Office: 350 Madison Avenue • New York 17, N. Y.

MID-CONTINENT SUPPLY COMPANY
Fort Worth, Texas and Branches
Exclusive Distributors in Arkansas, Kansas
Louisiana, New Mexico, Oklahoma and Texas

18-8

AND THE ODDS ARE

...3 TO 1.....

THE odds are 3 to 1 that castings made from one of the famous Circle L "18 and 8" alloys will do a better and more practical job in resisting corrosive conditions than those made from any other formula.

We pour a lot of alloy tonnage out of our electric induction furnaces in the course of a month. Some of it is very special stuff. All of it is carefully matched to the exact service conditions of the equipment and machinery into which the castings are fabricated. A study of our records proves beyond a doubt that our Circle L "family" of "18 and 8" alloys tops the list as the practical, economical corrosion resistant material.

The Nominal Analysis and Nominal Physical Properties of one of these, Circle L 22, are given at left. However there are many variants of this approximate analysis which make possible its successful application to a wide range of service conditions. They are summarized on the new Circle L Alloy Data Sheet, sent upon request.

LEBANON CIRCLE L 22

NOMINAL ANALYSIS

Carbon Max.	0.07
Silicon	1.25
Manganese	0.75
Chromium	19.50
Nickel	9.00

NOMINAL PHYSICAL PROPERTIES

Tensile Strength	75,000
Yield Point	36,000
Elongation in 2"—%	50
Brinell Hardness	135

LEBANON STEEL FOUNDRY, LEBANON, PA.
"In The Lebanon Valley"

ORIGINAL AMERICAN LICENSEE GEORGE FISCHER (SWISS CHAMOTTE) METHOD

LEBANON ALLOY AND STEEL **Castings**

CIRCLE L

County—	Comp.	Oil	Gas	Dry	Footage
Treasure	1	0	0	1	7,488
Wheatland	1	0	0	1	850
Yellowstone	2	0	0	2	3,775
Total	42	7	8	27	124,180

WYOMING

Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	6	2	0	4	29,953
February	5	1	1	3	30,867
March	5	1	0	4	27,558
April	3	1	0	2	11,545
May	4	1	1	2	32,795
June	4	0	0	4	24,632
July	2	0	0	2	13,757
August	8	2	0	6	30,673
September	9	2	2	5	62,396
October	7	0	1	6	35,414
November	9	2	1	6	44,047
December	5	1	0	4	17,593
Total	67	13	6	48	361,230

WYOMING

Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
January	12	9	1	2	55,386
February	11	7	2	2	63,201
March	16	13	1	2	62,187
April	12	9	1	2	61,807
May	17	14	2	1	65,697
June	7	6	0	1	29,847
July	17	15	1	1	68,447
August	24	16	1	7	100,124
September	16	14	2	0	68,522
October	21	16	1	4	87,678
November	20	16	1	3	84,691
December	27	24	0	3	94,286
Total	200	159	13	28	841,873

WYOMING

Total Completions by Months

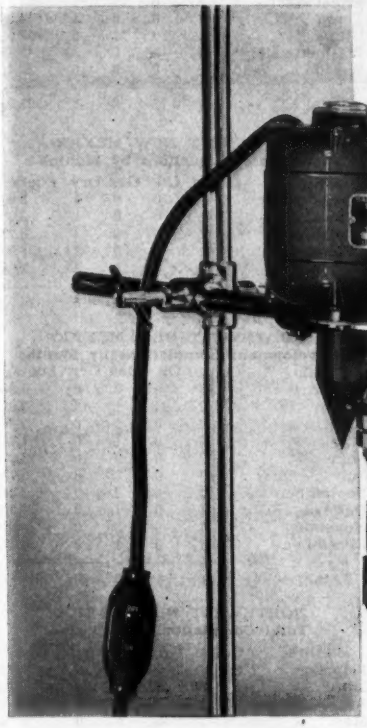
Month—	Comp.	Oil	Gas	Dry	Footage
January	18	11	1	6	85,339
February	16	8	3	5	94,068
March	21	14	1	6	89,746
April	15	10	1	4	73,352
May	21	15	3	3	98,492
June	11	6	0	5	54,479
July	19	15	1	3	82,204
August	32	18	1	13	130,797
September	25	16	4	5	130,918
October	28	16	2	10	123,092
November	29	18	2	9	128,738
December	32	25	0	7	111,879
Total	267	172	19	76	1,203,163

WYOMING

Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Badger Basin	1	1	0	0	8,500
Beaver Creek	5	0	4	1	43,604
Big Polecat	1	0	1	0	2,759
Big Muddy	9	9	0	0	40,027
Big Sand Draw	3	2	1	0	21,633
Bolton Creek	1	0	0	1	2,561
Byron	6	4	1	1	30,047
Circle Ridge	3	3	0	0	2,943
Corley	1	1	0	0	5,075
Crook's Gap	3	3	0	0	15,891
Dallas-Derby	1	1	0	0	1,146
Dry Piney	1	0	0	1	3,004
East Lance Creek	5	3	1	1	19,804
Elk Basin	1	1	0	0	5,941
Frannie	15	14	0	1	52,103
Garland	9	7	2	0	35,948
Gebo	7	7	0	0	34,906
Grass Creek	2	2	0	0	8,497
Greybull	2	1	0	1	2,158
Hamilton	22	22	0	0	68,120
Herrick	1	1	0	0	3,735
Hiawatha	1	0	1	0	4,375
Hidden Dome	3	3	0	0	14,852
Horse Creek	4	4	0	0	21,512
Kirby Creek	5	5	0	0	14,418
Lamb	1	1	0	0	3,578
Lander-Hudson	1	1	0	0	1,675
Little Buck Creek	3	3	0	0	11,671
Little Buffalo Basin	6	6	0	0	27,519
Lost Soldier	4	4	0	0	21,794

SARGENT CONE DRIVE STIRRING MOTOR



Smooth, Vibrationless Drive with full power of motor delivered at all speeds

Throughout the entire speed range of 75 to 1300 r.p.m., the Sargent Cone Drive delivers *full* motor power, is vibrationless and silent, and assures constancy of any selected speed. It is, therefore, as efficient for such applications as the rotation of electrodes and calorimeter paddles at speeds of about 200 r.p.m. or less, as it is for general stirring operations at higher speeds. Fine adjustment of speed is made by means of an adjusting nut which changes the effective diameter of the cone in contact with the friction ring. Because the motor is a brushless, induction type not containing centrifugal switches, it is recommended as safe for use in the presence of inflammable vapor. The simple right angle clamp permits rapid adjustment of the motor to any desired position in horizontal and vertical planes.

S-76445 Sargent Cone Drive Stirring Motor. (Patent No. 1,973,576.) Complete with cross support rod, right angle clamp, connecting cord and plug, but without support stand. For operation from 115 volt A.C. 60 cycle circuits....**$40.00**
S-76455 Ditto. But for 115 volt D.C. circuits..... **46.00**
S-76465 Ditto. But for 230 volt A.C. 60 cycle circuits **42.00**
S-76475 Ditto. But for 230 volt D.C. circuits..... **48.00**
S-76480 Anode Chuck and Cathode Collet..... **1.50**
S-79225 Support only for Sargent Cone Drive Stirring Motor (illustrated above). Designed with considerable mass to minimize support vibration. The heavy U shaped base accommodates vessels up to six inches in diameter and larger vessels can be placed on top of the base which has a flat surface. Supplied with a ⅝" rod, 30 inches long and adjusting screws to insure a solid four point support on any surface. Each.....**$10.00**

SARGENT

SCIENTIFIC LABORATORY EQUIPMENT AND CHEMICALS
E. H. SARGENT & COMPANY, 155-165 EAST SUPERIOR ST. · CHICAGO 11, ILL.
MICHIGAN DIVISION *1959 EAST JEFFERSON · DETROIT, MICHIGAN*

The Linn Model CI-6 with an IDECO 5060 Service Winch.

Here is a service rig that is ready to go *any place* at *any time!* It's a versatile LINN CI-6 chassis with an IDECO 5060 Service winch. This rig is designed to reach locations inaccessible by truck . . . over terrain that is too tough for standard haulage equipment.

The LINN HAFTRAK is a rugged, dependable off highway vehicle — its traction unit is *flexible,* bites in to give maximum traction over sand, mud, ice, snow, or severe grades. The LINN is a day in day out worker, it takes truck stopping weather and terrain in its stride.

LINN HAFTRAK chassis available with wheel bases from 140" to 330" — built to fit the requirements of the rig used. For technical information and specifications write to our General Sales Office, 250 West 57th St., New York 19, N. Y.

THE LINN MANUFACTURING CORPORATION
MORRIS, NEW YORK
Manufacturers of Haftraks for Over 30 Years

1-LN-2

Field—	Comp.	Oil	Gas	Dry	Prod.
Middle Baxter Basin	2	0	0	2	8,331
Mush Creek	23	14	0	9	89,175
North Baxter Basin	1	0	0	1	4,888
North La Barge	1	0	0	1	2,477
Oil Springs	1	0	0	1	2,472
Oregon Basin	7	7	0	0	27,071
Poison Spider	1	1	0	0	1,449
Quealy	2	2	0	0	11,195
Salt Creek	7	6	0	1	17,264
Sand Creek	1	1	0	0	6,892
Sheep Creek	1	1	0	0	2,360
South Casper Creek	1	0	1	0	1,700
South Elk Basin	3	3	0	0	21,172
South Spring Creek	2	2	0	0	8,835
Spence	3	0	0	3	2,912
Steamboat Butte	5	5	0	0	34,800
Table Rock	1	0	1	0	3,950
Worland	4	3	0	1	39,680
Sulphur Creek	1	1	0	0	707
Wertz	1	1	0	0	6,528
Zimmerman Butte	2	2	0	0	8,570
Miscellaneous	3	1	0	2	9,649
Total	200	159	13	28	841,873

WYOMING
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Albany	6	3	0	3	21,617
Big Horn	10	2	0	8	37,704
Carbon	6	1	1	4	36,404
Fremont	9	1	2	6	57,192
Hot Springs	1	0	0	1	5,075
Lincoln	1	0	0	1	2,386
Natrona	7	1	1	5	23,800
Niobrara	3	0	0	3	11,982
Park	4	1	0	3	30,005
Sheridan	1	0	0	1	9,830
Sublette	2	0	0	2	13,746
Sweetwater	2	0	1	1	21,243
Teton	1	0	0	1	4,590
Uinta	1	0	1	0	13,063
Washakie	7	4	0	3	47,151
Weston	6	0	0	6	25,443
Total	67	13	6	48	361,230

NORTHWEST NEW MEXICO
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
April	1	0	0	1	3,592
June	1	0	0	1	3,564
September	1	0	0	1	3,710
October	1	0	0	1	5,953
December	2	1	0	1	3,886
Total	6	1	0	5	20,705

NORTHWEST NEW MEXICO
Development Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	3	0	3	0	4,950
March	2	1	1	0	3,010
April	1	0	1	0	9,265
May	1	0	1	0	1,742
June	2	0	2	0	3,379
July	2	0	2	0	3,729
September	2	0	2	0	3,548
October	1	0	1	0	1,568
November	3	0	3	0	5,986
December	4	0	4	0	8,296
Total	21	1	20	0	45,473

NORTHWEST NEW MEXICO
Total Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
February	3	0	3	0	4,950
March	2	1	1	0	3,010
April	2	0	1	1	12,857
May	1	0	1	0	1,742
June	3	0	2	1	6,943
July	2	0	2	0	3,729
September	3	0	2	1	7,258
October	2	0	1	1	7,521
November	3	0	3	0	5,986
December	6	1	4	1	12,182
Total	27	2	20	5	66,178

NORTHWEST NEW MEXICO
Development Completions by Fields

Field—	Comp.	Oil	Gas	Dry	Prod.
Aztec-Bloomfield	1	1	0	0	1,390
Barker Creek	1	0	1	0	9,265
Fulcher Basin	14	0	14	0	23,927
Kutz Canon	4	0	4	0	8,289
Ute	1	0	1	0	2,602
Total	21	1	20	0	45,473

NORTHWEST NEW MEXICO
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
McKinley	1	0	0	1	2,996
Rio Arriba	1	0	0	1	3,710
San Juan	2	1	0	1	6,843
Socorro	1	0	0	1	3,592
Union	1	0	0	1	3,564
Total	6	1	0	5	20,705

UTAH
Wildcat Completions by Months

Month—	Comp.	Oil	Gas	Dry	Footage
April	1	0	0	1	3,485
May	1	0	0	1	8,001
July	1	0	0	1	9,355
November	1	0	0	1	6,012
Total	4	0	0	4	26,853

UTAH
Wildcat Completions by Counties

County—	Comp.	Oil	Gas	Dry	Footage
Emery	1	0	0	1	3,485
Daggett	1	0	0	1	9,355
Uintah	2	0	0	2	14,013
Total	4	0	0	4	26,853

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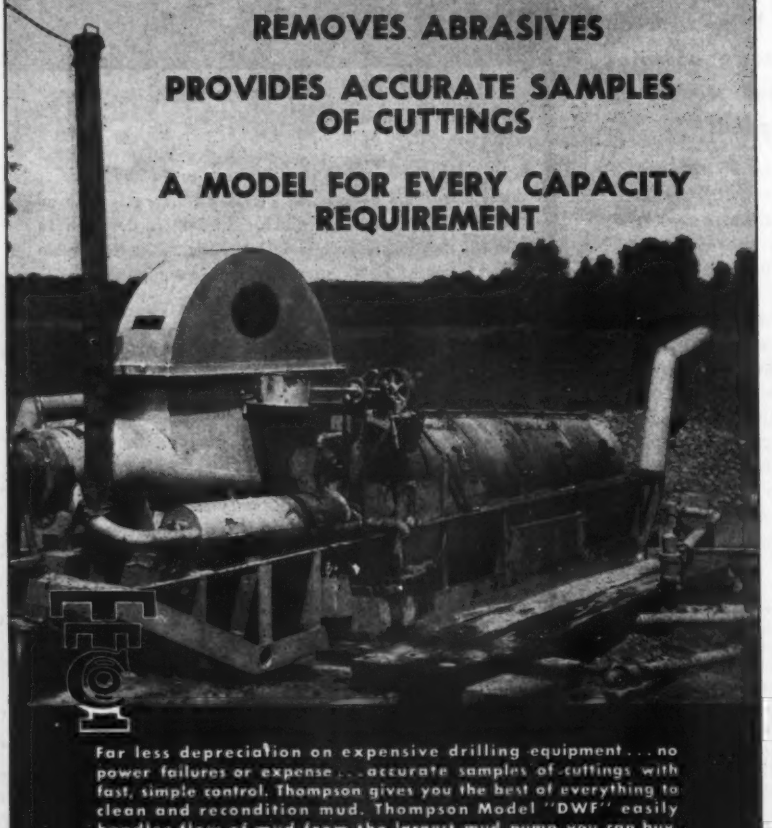
A MODEL FOR EVERY CAPACITY REQUIREMENT



Far less depreciation on expensive drilling equipment . . . no power failures or expense . . . accurate samples of cuttings with fast, simple control. Thompson gives you the best of everything to clean and recondition mud. Thompson Model "DWF" easily handles flow of mud from the largest mud pump you can buy. Field-tested sample machine is standard equipment on every model . . . pays for the entire separator in a short time. Your dealer is ready to fill your order now.

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PROGRESS IN METALS

by W. L. Nelson

Consulting Engineer

Scaling of Gas-Turbine Steels

IN the gas turbine, as in any heat engine, the hot structural components are exposed not only to mechanical stresses but also to the chemical attack of the combustion products. In the closed-cycle turbine, however, the turbines are driven by clean air or a natural gas, so neither the turbine nor the heat exchanger comes in contact with the products of combustion. Thus, with the closed cycle, a superior heat engine does not require the "universal" steel not yet discovered, which has high mechanical strength and resistance to chemical attack. In the air heater where the steel must be chemically resistant to the fuel and its combustion products, the mechanical stresses are lower than in the turbine where the steel is exposed to clean air only.

Scaling Tests

Various scaling tests at temperatures of 1,110° to 1,830° F. in air and combustion gases were made on a number of heat-resisting steels: 18 per cent chromium-8 per cent nickel; 16 per cent chromium-8 per cent nickel-2.5 per cent silicon; 25 per cent chromium-20 per cent nickel-1.5 per cent molybdenum; 16 per cent manganese-15 per cent chromium; 14 per cent chromium-1 per cent nickel; 17 per cent chromium-1 per cent nickel; 27 per cent chromium-4.5 per cent nickel-1.5 per cent molybdenum; 18 per cent manganese-9 per cent chromium-0.5 per cent titanium; and 18 per cent manganese-12 per cent chromium-0.5 per cent vanadium. The tests were continued for 120 hours, but were interrupted four times by intermediate cooling.

In some cases, the high-sulfur combustion gas caused less scaling than that with a low sulfur content. As a general rule, the sulfur content had no appreciable effect on the scaling loss up to 1,110° F. and in some cases us to 1,290° F. The 25-20 type was less sensitive to the effect of sulfur than the 18-8 type. The 16-15 and the 14-1 steels suffered comparatively great scaling losses even in air. Contrary to opinions expressed previously, the 17-1 and the 27-4.5-1.5 types were not superior to the chromium-nickel steels.

It is not justifiable to transfer the results immediately to practice since scaling usually does not increase linearly but becomes slower with increasing exposure times.

An abstract of "Scaling of High-Strength Heat-Resisting Steels," by Stauffer and Klieber, J. Iron and Steel Inst. (British), 156, 181 (June 1947) taken from the November 1947 issue of Materials and Methods.

Strengthening Steels by Subzero Treatment

BENEFICIAL effects can often be realized from subzero treatment of steels. The temperatures involved in these treatments are usually —90° to —120° F. There are two main classes of treatment. One uses low temperatures as part of the heat treatment of high-speed steels, to give longer tool life. The other use is in the treatment cycle of highly alloyed steels. In this case treatment is advantageous from the point of view of increased dimensional stability and hardness. Both uses aim at the complete removal of the objectionable austenite which often remains after normal heat treatment.

Reports on actual application of subzero treatment to high-speed tools are very conflicting. Some users claim improvements of literally hundreds of per cent increase in the number of components per regrind per tool. From the author's work, observed improvement was in the 10 per cent region.

Improvements to Be Expected

Generally speaking, far too little practical application of subzero treatment has been applied to determine accurately the improvement to be expected treating high-speed steel.

Subzero treatments have a definite place in the thermal treatment of other highly alloyed steels. Many of these steels are commonly used for highly stressed components manufactured to close tolerances, or for dies and press tools, again held to close dimensions. Austenite, therefore, is undesirable because optimum hardness is not obtained, there is danger of dimensional instability, there are thermal stresses, and the possible effect on the surface finish during finishing operations.

There are many aspects of the use of low temperatures that still need to be investigated. Observations such as those concerning the softening effect of various tempering temperatures on steels with and without subzero treatments require further study.

An abstract of "Sub-Zero Treatment of Steels," by G. H. Jackson, Engineers Digest (Am.) 4, 104 (March 1947), taken from the June 1947 issue of Materials and Methods.

References to Flame Spraying of Metals

ALTHOUGH metal spraying is an old process, it never fails to attract the attention of readers. M. U. Schoop called attention to the process in 1910 by means of two German papers and one in English (Ref. 1). A book, "Metal Spraying," by Rollason, Turner and Budgen appeared in 1926 and a second edition in 1939 (Ref. 2). Improvement in the process and the scope of its application has increased steadily throughout the years. It has even been discussed on this page of The Oil and Gas Journal repeatedly (Ref. 3, 4, 5, 6, and 7) between 1940 and 1947. One of the most active companies is Metallizing Engineering Co., Inc., New York. Hundreds of other references can be located from the references.

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13. Oxyacetylene Committee, Miscellaneous Uses of the Oxyacetylene and Air-Acetylene Flames, International Acetylene Association, 30 East 42nd St., New York 17.

Metallurgical Terms

SOAKING

The operation of holding steel at a fixed temperature long enough for a complete uniform penetration of the heat is referred to as soaking.

1st NATIONAL

STATEMENT OF CONDITION

At the close of business December 31, 1947

RESOURCES

Cash on Hand and Due from Banks	$113,578,977.29
United States Securities Owned	65,240,045.15
Other Stocks and Bonds	7,314,255.43
Loans and Discounts	133,933,716.19
Banking House and Equipment	2,371,844.38
Other Assets	1.00
	$322,438,839.44

LIABILITIES

Capital Stock	$ 7,500,000.00	
Surplus Fund	7,500,000.00	
Undivided Profits, Net	5,652,568.66	$ 20,652,568.66
Reserved for Taxes, Etc.		2,115,194.60
DEPOSITS:		
U. S. Gov't	$ 6,002,867.28	
Other Deposits	293,668,208.90	299,671,076.18
		$322,438,839.44

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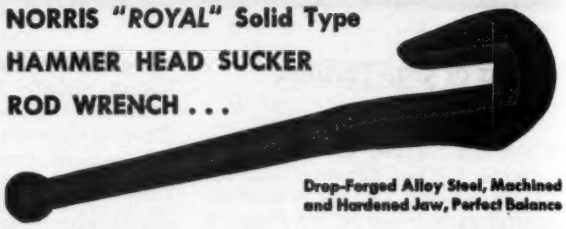

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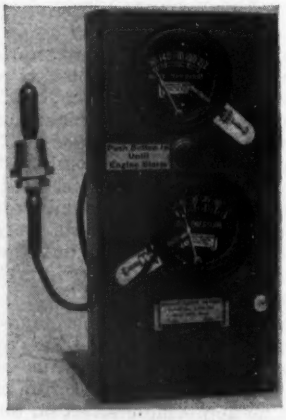

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MODERN Rotary DRILLING

Drilling Bits— General

THE only time a rotary rig is performing an actually productive function is when the bit is on the bottom of the well and the hole is drilled, reamed, or cored. Ratio of the time spent by the rig in performing these operations to the over-all time of the rig on the well is a measure of drilling efficiency. The drilling cost per bit is determined by the footage secured by the bit and by the cost of the bit, and of the rig time, including round-trip time, during which the bit is in use.

Among factors affecting both drilling efficiency and drilling cost per bit are the drilling conditions, that is, the depth of the well drilled and the type of formations drilled. With the continuously increasing depth of wells, the resulting increase in time needed for round trips and the character of formations encountered in deep-well drilling tend to affect unfavorably the drilling efficiency. Adoption of all the modern improvements in different systems, functions, and operations of the rotary rig is one of the means of maintaining this efficiency. These improvements, discussed previously in this series, include speeding rigging-up operations, improvements in hoisting system to reduce the time of round trips, and betterments in the power and circulating system of the rig. Another phase of the effort to maintain drilling efficiency are improvements which tend to increase the rate of penetration and the life expectancy of drilling bits. They include improvements in design and materials of the bits and the proper coordination of volumes of circulation, weights on bit, and speeds of rotation.

A drilling bit may be considered from two points of view. First, is the bit as one of the elements of the circulating system of the rig, affecting its performance and being in turn affected by its characteristics. Second, is the bit as a hole-cutting tool. The first consideration pertains to the pressure drop across the bit and to the effect the mud stream leaving the bit may have on its life and performance.

Water Courses

Fig. 58, prepared by one of the bit manufacturers, shows pressure drop across the bit for different total areas of the nozzles and for different volumes of circulation. The chart indicates that, with large volumes of circulation as now used, the pressure drops may become excessive unless the question of nozzle sizes is given proper consideration. Too-small water-course openings may result in destructive cutting action of the high-velocity mud stream on blades or cutters of the bit. This could happen particularly in drilling of the puper portion of the well, in areas where large volumes of circulation are required in this portion of the hole, and where the mud may contain considerable amounts of sand.

As a general rule the question of the proper sizes of water courses of drilling bits is satisfactorily settled by both the bit designers and the bit users. Long experience with volumes of circulation, types of muds used, and drilling conditions encountered in different drilling areas makes it possible for the bit manufacturers to furnish the operator with bits with proper size nozzles. It is seldom that exceptions to the area or field standards have to be made. Field experience also is the basis for proper placement of water courses to utilize fully the jetting action of the mud stream without damage to the blades or cutters of the bit. To diminish the abrasive action of the mud stream, the water courses are hardened or the bits are equipped with replaceable nozzles.

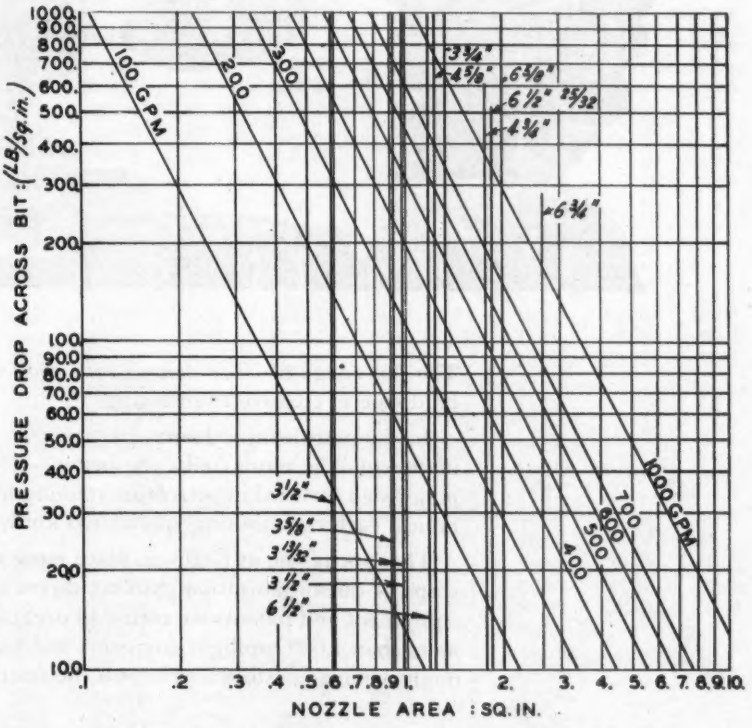


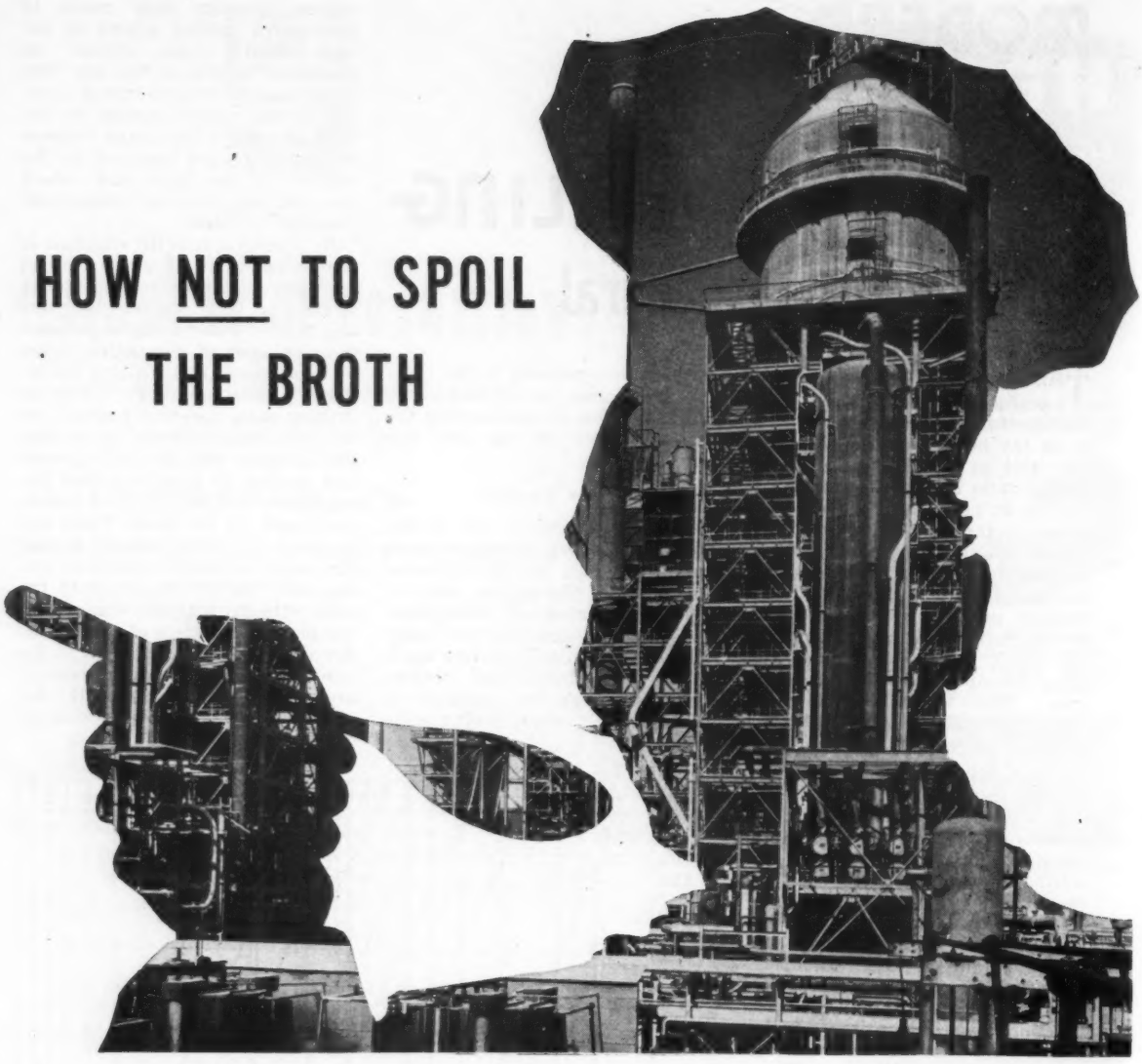
Fig. 58—Pressure drop across bit vs. nozzle area. Formula used:

$$\text{Press drop (psi.)} = \left[\frac{\text{Flow (gal./min.)}}{28.A \times \text{Area (in.}^2\text{)}}\right]^2$$

Based on standard hydraulic formula assuming: Orifice coefficient = 0.80. Mud density = 9.5 lb./gal.

No. 53 in a series by Joseph Zaba, petroleum engineer, Houston

HOW NOT TO SPOIL THE BROTH



The old adage of *"Too many cooks spoil the broth"* certainly doesn't hold true in creative engineering.

In the petroleum industry, particularly, new processes seem to be a matter of "the more cooks the better"—for, without exception, every major step forward in petroleum refining has been the product of many minds, each contributing specialized knowledge to the same problem.

That's why we, at Kellogg, place more emphasis on the caliber and scope of our organization than we do on all the laboratories, physical equipment and patents we own—an organization which now embraces more than 1,000 topflight engineers and technicians, in every field that might have a possible bearing on the future of petroleum processing.

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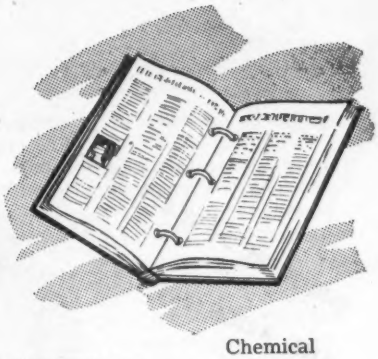
The Refiner's Notebook

A WEEKLY FEATURE OF THE OIL AND GAS JOURNAL



9—Pipe and Tubing Sizes (13⅜–21½ In.)

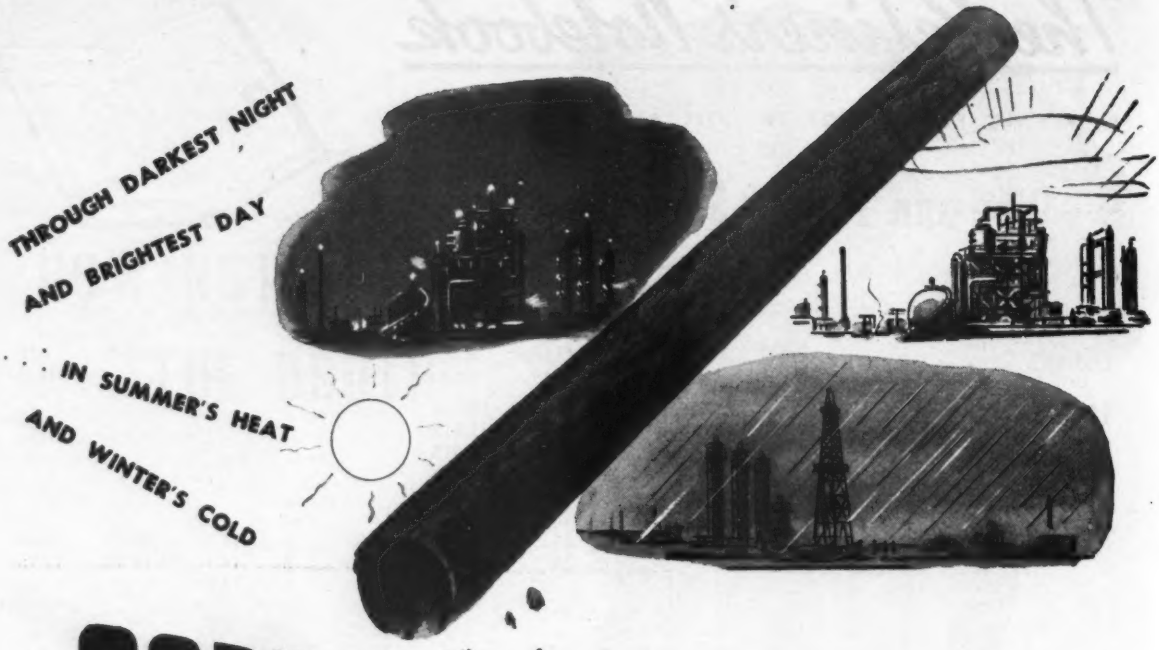
Nominal pipe size (in.)	Schedule	Steel pipe O.D. (in.)	Steel pipe I.D. (in.)	Casing O.D. (in.)	Casing I.D. (in.)	Cast iron pit-cast O.D. (in.)	Cast iron pit-cast Grade	Cast iron pit-cast I.D. (in.)	Chemical ware O.D. (in.)	Chemical ware I.D. (in.)
13⅜	...	....	.....	13⅜	12.715	....	..	....	....	....
	...	....	.....	13⅜	12.615	....	..	....	....	....
	...	....	.....	13⅜	12.515	....	..	....	....	....
	...	....	.....	13⅜	12.415	....	..	....	....	....
	...	....	.....	13⅜	12.347	....	..	....	....	....
	...	....	.....	13⅜	12.175	....	..	....	....	....
14	10	14.0	13.500	14	13.448	15.30	1	14.22	16.00	14.00
	20	14.0	13.376	14	13.344	15.30	2	14.14	16.00	12.75
	30	14.0	13.250	....	.....	15.65	3	14.39	....	....
	40	14.0	13.126	....	.....	15.65	4	14.29	....	....
	60	14.0	12.814	....	.....	15.65	5	14.19	....	....
	80	14.0	12.500	....	.....	15.65	6	14.07	....	....
	100	14.0	12.126	....	.....	15.65	7	13.95	....	....
	120	14.0	11.876	....	.....	15.98	8	14.14	....	....
	140	14.0	11.500	....	.....	15.98	9	14.00	....	....
	160	14.0	11.188	....	.....	16.32	10	14.18	....	....
	...	....	.....	....	.....	16.32	11	14.00	....	....
15	...	....	.....	15	14.418	....	..	....	17.25	15.00
	...	....	.....	....	.....	....	..	....	17.00	15.00
16	10	16.0	15.500	16	15.396	17.40	1	16.24	18.50	16.00
	20	16.0	15.376	16	15.250	17.40	2	16.14	18.50	15.00
	30	16.0	15.250	16	15.198	17.80	3	16.44	....	....
	40	16.0	15.000	16	15.125	17.80	4	16.34	....	....
	60	16.0	14.688	16	15.010	17.80	5	16.22	....	....
	80	16.0	14.314	....	.....	17.80	6	16.10	....	....
	100	16.0	13.938	....	.....	17.80	7	15.96	....	....
	120	16.0	13.564	....	.....	18.16	8	16.18	....	....
	140	16.0	13.126	....	.....	18.16	9	16.02	....	....
	160	16.0	12.876	....	.....	18.54	10	16.22	....	....
	...	....	.....	....	.....	18.54	11	16.04	....	....
18 and 18⅝	10	18.0	17.400	18⅝	17.855	19.50	1	18.24	20.50	18.00
	20	18.0	17.376	18⅝	17.755	19.50	2	18.14	20.00	18.00
	30	18.0	17.126	18⅝	17.655	19.92	3	18.46	20.50	16.75
	40	18.0	16.876	....	.....	19.92	4	18.34	....	....
	60	18.0	16.564	....	.....	19.92	5	18.22	....	....
	80	18.0	16.126	....	.....	19.92	6	18.08	....	....
	100	18.0	15.688	....	.....	19.92	7	17.94	....	....
	120	18.0	15.314	....	.....	20.34	8	18.20	....	....
	140	18.0	14.876	....	.....	20.34	9	18.02	....	....
	160	18.0	14.500	....	.....	20.78	10	18.28	....	....
	...	....	.....	....	.....	20.78	11	18.08	....	....
20 and 21½	10	20.0	19.500	20	19.190	21.60	1	20.28	22.75	20.00
	20	20.0	19.250	20	19.166	21.60	2	20.18	22.00	20.00
	30	20.0	19.000	20	19.124	21.60	3	20.06	22.75	18.75
	40	20.0	18.814	....	.....	22.06	4	20.40	....	....
	60	20.0	18.376	....	.....	22.06	5	20.26	....	....
	80	20.0	17.938	21½	20.710	22.06	6	20.12	....	....
	100	20.0	17.500	21½	20.610	22.06	7	19.96	....	....
	120	20.0	17.000	21½	20.150	22.54	8	20.28	....	....
	140	20.0	16.500	....	.....	22.54	9	20.10	....	....
	160	20.0	16.126	....	.....	22.54	10	19.90	....	....
	...	....	.....	....	.....	23.05	11	20.16	....	....

Notes—Refer to Refiner's Notebook 173 (December 6) for References and Specifications.

Smaller sizes of pipe and tubing were tabulated in The Refiner's Notebooks Nos. 168 (November 7), 169 (November 8), 170 (November 15), 172 (November 29), 174 (December 13), 175 (December 20), 178 (January 8, 1948), and 179 (January 15).

Seamless steel tubing is also available as follows: 14-in. o.d. ⅞ and ½ in. thick; 16-in. o.d. ⅞, ½, and ¾ in. thick; 18-in. o.d. ⅞ and ½ in. thick; and 20-in. o.d. ½ in. thick.

No. 181 in a series by W. L. Nelson, professor of petroleum refinery engineering, University of Tulsa



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ENGINEERING fundamentals

Combination of Permeabilities—Parallel Beds

THE permeability of a reservoir is determined from measurements made upon small samples taken from the reservoir. In most reservoirs there will be both a lateral and vertical variation in permeability. It is desirable to know how to re-combine the individual permeability measurements, representing several portions of the reservoir, into an average value. The present discussion will outline the calculation of average permeability on beds in parallel, assuming that each individual bed is homogeneously permeable.

Consider the situation of several beds lying in parallel (Fig. 1), each of which is separated from the others so that no cross flow can occur. For sake of illustration, consider that the beds are in a radial system, although the application can be made as readily to other systems. It is also assumed that the physical dimensions and pressure boundaries are the same for all beds. By Darcy's law, for the first of the beds, the rate of fluid flow through it is

$$Q_1 = \frac{2\pi k_1 h_1 (P_e - P_w)}{\mu \ln R_e/R_w} \quad (1)$$

and for each succeeding bed the flow Q_2, Q_3, etc. is expressed by a similar equation with the quantities k_2h_2, k_3h_3, etc. Now, the flow through the entire system of beds equals the sum of the flow through the individual beds. Thus

$$Q_t = Q_1 + Q_2 + Q_3 + Q_4 + \ldots \quad (2)$$

And the total flow can also be expressed by the use of the average permeability desired as

$$Q_t = \frac{2\pi k_{avg} h_t (P_e - P_w)}{\mu \ln R_e/R_w} \quad (3)$$

where h_t is the sum of the thicknesses of the individual beds. Therefore, by substituting Equations 1 and 3 in Equation 2 it is seen that

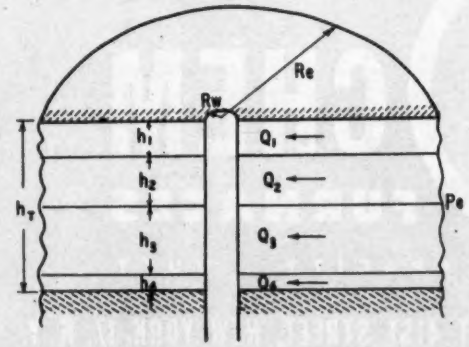
$$k_{avg} h_t = k_1h_1 + k_2h_2 + k_3h_3 + k_4h_4 + \ldots \quad (4)$$

Thus, the average permeability is equivalent to the sum of the products of the individual permeabilities and their respective sand thicknesses divided by the entire thickness in question. The term kh is commonly referred to in terms of millidarcy-feet and is known as the "permeability capacity" of a section. It is convenient when dealing with cores to express flow in terms of permeability capacity because the addition of individual terms gives directly the quantity sought for average conditions, as shown by Equation 4.

For example, consider the graph of permeability versus depth shown in Fig. 2.* The average permeability of the interval between 6,185 and 6,212 ft. can be figured by multiplying each plotted permeability by the depth interval which it represents and then dividing the sum of all such products by 27 ft., the entire thickness. Referring to the graph, at a depth of 6,195.5 ft., the permeability of 110 md. represents the equivalent of approximately 0.75 ft. and the product kh for this point is therefore 82.5 md.-ft. This procedure is then followed for each permeability point given. A more expeditious method of carrying out the complete computation in place of making these individual multiplications is to calculate the area to the right of the graph line. This area is shown by the shaded portion of Fig. 2. In this particular case the area is equivalent to 1,886 md.-ft. Therefore, the average permeability of the 27-ft. interval is

$$k_{avg} = \frac{1{,}886}{27} = 69.9 \text{ md.}$$

*R. I. 3715, U.S.B.M., Hill and Guthrie, An Engineering Study of Rodessa Oil Field, page 84.



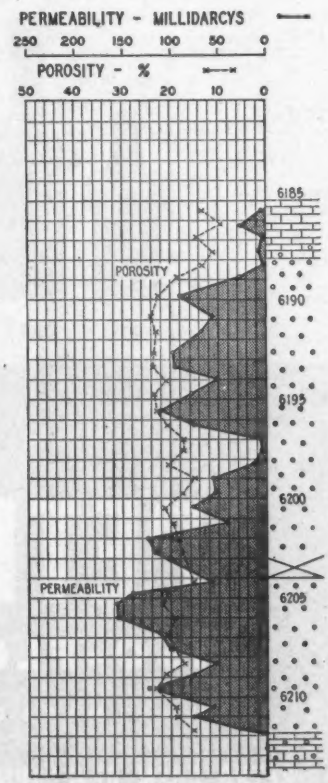


Fig. 1—(Left) Section showing several zones of different thickness lying in parallel. Fig. 2—(Right) Core graph of permeability and porosity (Rodessa Field). Total flow capacity is 1,886 md.-ft., and the average permeability is 69.9 md.

Series prepared by Dr. John C. Calhoun, Jr., Petroleum Engineering School, University of Oklahoma

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NATURAL GAS

Humble Offers More For East Texas Gas

HOUSTON.—A revised contract containing several modifications increasing the price paid for casing-head gas has been offered by Humble Oil & Refining Co. to producers from whom it buys gas in East Texas field.

In a letter to producers in the field, J. O. Sue, superintendent of Humble's gas division, said the new contract was the result of several months' study on the part of the company to draft a basis of settlement which would be equitable to both producer and gasoline-plant operator.

Contracts for casing-head gas processed by gasoline plants provide for gas prices based on gasoline content and the current price of natural gasoline with additional payment dependent on residue gas sold and other products, such as butanes and propane, extracted. The amount of the increase provided in the new Humble contract thus varies for different producers, but the company's letter said that, based on November 1947, the average gas processed in its East Texas plants would have been worth 16.01 cents per M.c.f. under the new contract, compared to 14.28 cents which the gas was worth under existing contracts, an increase of 12.09 per cent. Had the price of 26-lb. R.v.p. natural gasoline, f.o.b. Breckenridge, been 4 cents instead of 6.428 cents during November and other factors remained the same, the increase to the producer would have been 32 per cent.

Inclusion of the freight differential between East Texas and Breckenridge in the natural-gasoline price used in settlement computations is one of the changes in the new contract.

Several other technical changes were made in the new contract offered by Humble, all resulting in generally higher prices. The producer is to be paid for the calculated butane between 26-lb. R.v.p. natural gasoline and the vapor pressure of the gasoline actually sold from the plant.

Another change in the contract was an improvement in the field tests to conform more nearly to plant recovery by using the California Natural Gasoline Association's test procedure. This, Humble said, would no doubt result in increased earning to the producer. In a further explanation of the contract, it was pointed out the product obtained by the test approximated 20-lb. gasoline that would be produced in a plant operating solely on the gas tested, and therefore the amount would be corrected to 26-lb. gasoline by applying a factor of 1.2362, a figure which Humble said was determined by actual analysis of the product recovered in its East Texas plants.

The new contract included a revision of the residue-gas clause providing that the plant operator return to the producer the producers' pro rata part of the actual volume of residue gas after extraction of products and after deducting gas used in plant operation.

An important modification in the new contract consisted of the use of the Fort Worth curve to determine the percentage of natural gasoline to be credited to the producer. This also gives certain advantages to the producer.

In its notification to the producers, Humble said the new basis of settlement would be effective only to those producers who entered into a new 5-year casing-head-gas contract. In a subsequent letter, the company pointed out that it was necessary, in changing to the new California testing method, to buy new equipment and change its entire procedure, but that every effort would be made to avoid delay in placing the new testing method in effect.

Difficulties at Seeligson Gas Plant Being Overcome

HOUSTON.—Regular operations are expected to begin in the near future at the new $7,500,000 absorption plant 3 miles north of Premont, Tex., which processes gas from Seeligson field in Kleberg and Jim Wells counties.

Approximately 20,000,000 cu. ft. daily have been processed at the plant since January 10, but, according to reports, the residue has been flared because of difficulties in dehydrating the gas for Tennessee Gas Transmission Co. whose pipe line passes nearby.

This problem is expected to be overcome shortly, and normal operations will be inaugurated. Operations at full capacity of the plant are not expected to be reached until about 8 months.

Status of the plant affects litigation now pending before the District Court in Austin, in which the validity of a Texas Railroad Commission order shutting down the field is being contested (The Oil and Gas Journal, January 15, page 44). Operator of the plant is Magnolia Petroleum Co. Other participating companies include Shell Oil Co., Inc., Sunray Oil Corp., and Sun Oil Co.

Gas Separation Plant Completed at Oakville

HOUSTON.—A mechanical separation plant and cycling facilities have been completed by Western Natural Gas Co. 3 miles east of Oakville in Live Oak County, Southwest Texas.

The plant includes two 600-hp. compressors, cooling, and stage-separation equipment. It is designed for the later addition of absorption facilities. Capacity is about 30,000,000 cu. ft. daily from Goebel field. Gas is cycled to the Luling sand of the Wilcox series. Operations commenced recently after a construction period of about 5 months.

Two Gas Companies Seek More Facilities

Atlantic Seaboard Corp. and Virginia Gas Transmission Corp. have filed an amended application with the Federal Power Commission requesting authorization to construct additions to cost an estimated $20,649,600 to their natural-gas systems.

Facilities include a 268-mile, 26-in. gas-transmission line extending from the vicinity of United Gas Pipe Line Co.'s Cobb compressor station near Glendenin, W. Va., to Rockville, Md., where it would connect with the existing main gas-transmission line of Atlantic. The West Virginia and Maryland portions of the line would be constructed by Atlantic while that in Virginia would be constructed by Virginia Gas Transmission Corp.

Atlantic also would construct a multiple river crossing consisting of four 16-in. lines crossing the Potomac River near Rockville, and additional measuring and regulating equipment. Virginia Gas proposes to construct two measuring stations.

If construction can be started in 1948, completion is expected not later than November 1, 1949, in order to meet customer demands.

Both companies are members of the Seaboard Division of the Charleston Group of the Columbia Gas System.

Gas Revenues Up

Operating revenues of natural-gas companies amounted to $57,641,286 in November, an increase of 13.2 per cent over the same month in 1946, according to a report of the Federal Power Commission.

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Among the

Drilling Contractors

Charter Transactions Involve Sooner Drillers

Oklahoma secretary of state has announced two charter transactions concerning two drilling contractors. Jackson & Gray Drilling Corp., Duncan, has been granted a charter with a capital of $50,000 listed. Incorporators are J. E. Jackson, H. G. Gay, and Charles R. Burton, all of Duncan.

An amendment increase has been listed for the charter of Corbett-Barbour Drilling Co., Tulsa, with capital stock increased from $25,000 to $250,000, and term of existence extended 20 years from March 17, 1946. Incorporators are A. M. Barbour and A. M. Barbour, Jr., both of Tulsa.

Former H. H. & B. Partners Organize New Concerns

Four former partners of H. H. & B. Drilling Co., Inc., of Wichita, have split into two separate concerns to continue their oil activities. H. H. & B. was sold last December 24 to E. H. Wahl, Oklahoma City, for a reported $2,000,000.

W. N. Bartlett will operate independently, and Jack H. Heathman, J. J. Honaker, and R. W. Bailey will form Heathman & Honaker Drilling Co. with offices in Wichita.

Kansas and Oklahoma oil properties of the old H. H. & B. concern were sold by Wahl a few weeks ago to Anderson-Prichard Oil Corp., Oklahoma City, for $2,000,000. Wahl retained undeveloped leases in six Kansas counties.

New Wyoming Contractor

Articles of incorporation have been filed by **Black Hills Drilling Co.** with the Wyoming secretary of state. Leo and Genevieve Aimonetto and W. and Clara E. Miller, all of Newcastle, are listed as directors, with capital stock of $150,000.

Halko Developing Keokuk

Halko Drilling Co., Shawnee, Okla., is rapidly developing its 1947 discovery, the Northeast Keokuk pool on the Okfuskee-Pottawatomie county line. To date, Halko has completed four pumping wells and one flowing well. The flowing well, 1 Irick, in the southwest section of the pool, was brought in last month. It has been given a daily allowable of 100 bbl. Halko is preparing to drill two offsets to the west and northwest.

Meredith, Clegg & Hunt, Houston, are moving in derrick to drill 2 T. F. Koch for The Texas Co. at Winnie,

This crew of Delaney Drilling Co., Ada, Okla., is drilling a Shell Oil Co., Inc., wildcat near Davenport, Okla. Shown are E. O. Mathis, driller; C. T. Sporleder; L. R. Rounsavell, and R. C. Miller

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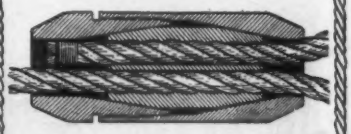

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Jefferson County, Texas. Contract depth is 8,000 ft. This same contractor's rig on Tide Water Associated Oil Co. 1 Guaranty Title & Trust Co., Nueces County, has apparently opened up a new deep field for Southwest Texas. Total depth is 11,490 ft. Production on present test is coming through perforations at 11,160-70 ft.

Gene Reid Drilling, Inc., Bakersfield, has contract for a well for Killingsworth and Smith in Huntington Beach field, California.

Davenport Drilling Co., Wichita Falls, has received permit to drill its 5 Hinton, NE SW NE 10-7n-17w, Kiowa County, Oklahoma.

E. L. & M. Drilling Co. is rigging up rotary to test Booch sand in its formerly abandoned 1 Meadors, NE SW NW 31-9n-11e, Hughes County, Oklahoma. Old total depth is 3,175 ft. and Booch sand was topped at 2,155 ft.

Commonwealth Drilling Co., of Calgary, Alta., is finishing Command-Lloyd 5 and drilling Command-Lloyd 6 in Lloydminster field. The same company has two rigs working on Imperial wells in Leduc field.

H. O. Grace, Wichita Falls, is moving in rotary tools for Big Six Oil Co. 3 Orr Estate, Section 2, Block 14, H&TC Survey, Harrold field, Wilbarger County, North Texas.

George Terry has contract to drill a Round Mountain field, California, test for Balscher Oil Co. Balscher has a 200-acre lease on 32-28s-29e.

Suntex Drilling Co., Oklahoma City, is starting a 2,350-ft. test, its 1 P. B. Warren, SW NW SW 20-28n-1e, old Dilworth area, Kay County, north Oklahoma.

Big Chief Drilling Co., Oklahoma City, is moving in materials for a 7,500-ft. test, the Delta Drilling Co. 1 Tremont Lumber Co., wildcat in C SE SE 15-10n-1w, Winn Parish, Louisiana.

Santa Fe Drilling Co., Santa Fe Springs, Calif., is contractor for deepening of Bartholomae Corp. 13 Stearn, East Coyote field, California.

Jack Grace, Wichita Falls, has a potential producer at the 1 Edwards, wildcat in S. C. Belden Survey A-12, Clay County, North Texas, which he is drilling for Wichita River Oil Co. and Phillips Petroleum Co. Test is 5½ miles east of Henrietta. Drillstem test in Strawn from 4,070-114 ft. had gas in 55 minutes and recovered 435 ft. of oil and oil-cut mud.

Brown Drilling Co., Long Beach, is drilling Shell Oil Co., Inc. 51-6 Lamb Community, West Newport field, Cali-

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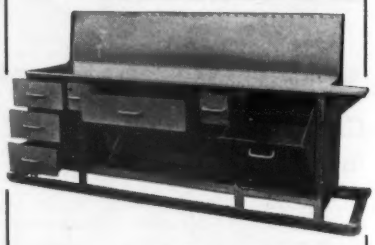

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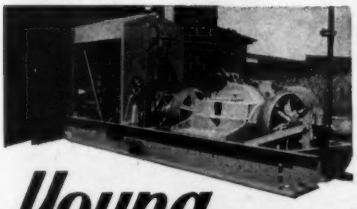

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fornia. Brown will also drill Macson Oil Co. 2 Shearer, Edison field, California.

Callahan Drilling Co. is below surface pipe at English & Hyde Petroleum Co. 1-A Wickham, NE NE 11-15n-6e, Lincreek area, Lincoln County, Oklahoma.

Acme Drilling Co. is drilling Oilfield Equipment & Supply Co. 1 Eaton, Huntington Beach, California.

Jenkins Drilling Co. is rigging up for its 1 Schmidt, SE SE SW 25-34n-12w, at Red Mesa, La Plata County, Colorado.

Amick Drilling Co. has completed a good shallow producer on Mosser Dome southwest of Billings, Mont. Well is 2 Kelly, SE SE SW 26-3s-24e. It topped Mosser sand at 992 ft. and after drilling only 1 ft. into the zone flowed 95 bbl. of oil in 24 hours.

Rocky Mountain Drilling Co., Los Angeles, will drill Union Oil Co. 106 Stearns in Brea-Olinda field, California.

Peel Drilling Co., Hoisington, Kans., is drilling A. J. Slagter and Glenn W. Peel 1 Stueder, wildcat in SW SW NE 5-18-11, 1 mile west and 1 mile north of Ehly pool, Barton County, Kansas.

Frizzell Drilling Co., Oklahoma City, has started a 2,450-ft. test, its 1 Frank McKenna, NW NE NE 24-15n-9w, Caddo County, Oklahoma.

Dunlap & Graham, Long Beach, is contractor for redrilling of Termo Co. B-4 well in Long Beach Harbor area, California.

Double R Drilling Co., Oklahoma City, is starting a fourth wildcat in Luther area of northeastern Oklahoma County, Oklahoma, at its 1 Rogers, SW SW NE 18-14n-1e. Contract depth is 5,900 ft.

Pacific Coast Drilling Co., Bakersfield, will drill a well for Charles W. Camp in Huntington Beach townlot field, California.

Portable Drilling Co., Tulsa, is under way on a 4,000-ft. test in Okfuskee County, Oklahoma, its 2 T. P. Camp, SW NW SW 6-11n-9e.

L. E. Reames Drilling Co., Oklahoma City, has started a Burgess sand test in Rogers County, Oklahoma, its 1 Charles Schmell, NW SW NW 28-22n-17e.

Fowler Drilling Co., Long Beach, is the contractor for Brookline Oil Co. 3-A in Long Beach Harbor area, California. Fowler also has contract to redrill several General Petroleum Co. wells.

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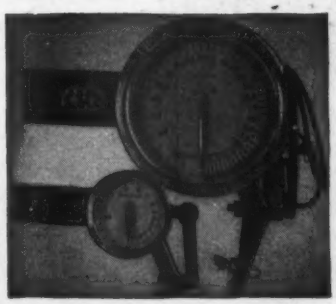

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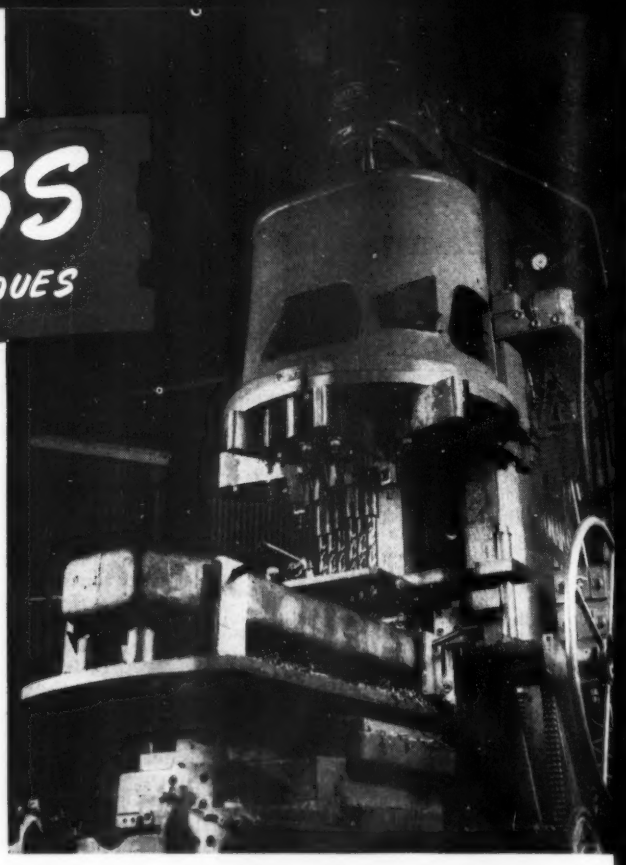

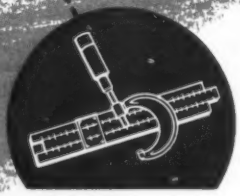

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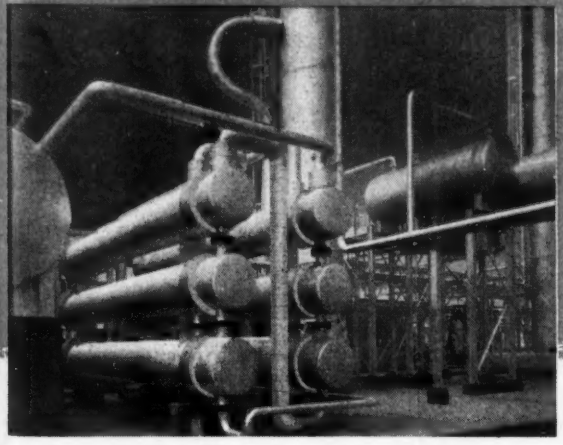

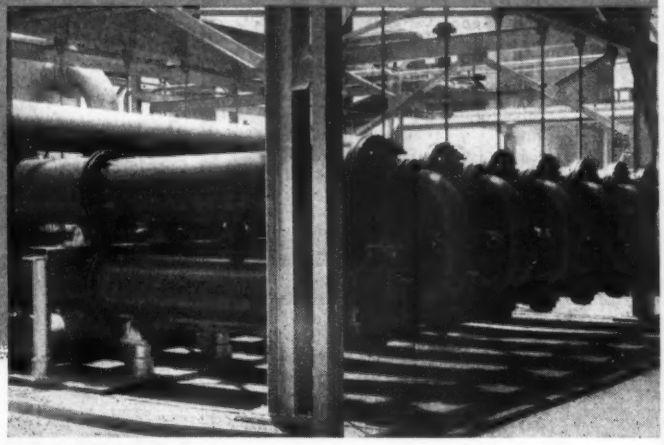

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The Texas Co. Schedules Broad Expansion Program

THE extensive program of expansion and modernization set up by The Texas Co. for its refineries and crude and lube oil facilities plus projects for a new refinery and expansion of its research laboratories, will for the most part be completed by mid-1949.

The new facilities planned for the West Tulsa refinery will increase the plant's crude-oil charging capacity to 30,000 bbl. daily, or 50 per cent greater than the current rating of 20,000 bbl. daily. Contracts for constructing the various units included in the project have been let to Foster Wheeler Corp. and to M. W. Kellogg Co. Engineering is in the hands of Kellogg, Foster Wheeler, and Universal Oil Products Co.

Major processing units included in the program are a crude atmospheric topping still and a vacuum pipe still, fluid catalytic cracking, and catalytic polymerization units. Auxiliaries for these units are also included in the projects.

Crude and lube oil facilities at Port Arthur, Tex., The Texas Co.'s largest refinery, are being expanded. Contract for the work involved in the current program, is with Foster Wheeler Corp. Completion schedule on the projects are set for early 1949, and when the new units are in operation refining capacities of the plant will be upped by 37,500 bbl. daily on crude-oil charge and 2,500 bbl. daily on finished lube oil production. Current crude-oil charging capacity of the Port Arthur refinery is given as 135,000 bbl. daily.

Changes in existing treating facilities at Port Arthur are also under way. This work, contracted by Foster Wheeler Corp., is scheduled for completion by March 1949. Purpose of the changes is to permit running West Texas-New Mexico crudes at the refinery.

Other projects under construction by The Texas Co. include expansion of its research laboratories at Beacon, N. Y., installation of new terminal facilities at Seattle, Wash., and a complete new refinery at Westville (Eagle Point), N. J.

Scheduled for completion near mid-1949, the new refinery at Westville is rated at 40,000 bbl. daily crude-oil charging capacity. Major processes

CONSTRUCTION UNDER WAY ON BILLINGS REFINERY

Progress in the construction of Carter Oil Co.'s 20,000-bbl. Billings, Mont., refinery is illustrated in these two photographs. Above: Aerial view, looking west. Upper center is tank No. 6, first above-ground unit completed. Lower right are completed pads for other tanks. Left: Pile driver at work in the catalytic cracking unit area. Piles are 16-ft. corrugated steel shells, driven into the ground and later filled with reinforced concrete. The new refinery is scheduled for completion in late spring of 1949. Clearing of the site was begun in November 1946 and the first piles were driven in July 1947. All heavy above-ground structures will be built on the piles

being installed in the new refinery include atmospheric and vacuum units, thermal reformer, fluid catalytic cracking, and catalytic polymerization. Construction contracts on the various units are with Foster Wheeler Corp. and M. W. Kellogg Co. Engineering work is being handled by Jackson - Moreland, Foster Wheeler and Kellogg.

The Texas Co.'s plans for its Lawrenceville, Ill., refinery include a fluid catalytic-cracking unit, atmospheric topping and vacuum stills, a catalytic-polymerization unit, and additions to plant auxiliaries. Scheduled for completion early in 1950, these new facilities will increase the Lawrenceville plant's capacity by some 20,000 bbl. daily crude-oil capacity.

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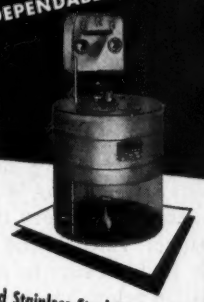

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General Petroleum Plans Torrance Plant Expansion

By late summer of this year, General Petroleum Corp. plans to have in operation a vacuum flash tower on the crude unit at its Torrance, Calif., refinery. The installation exclusive of auxiliary equipment, is estimated to cost in excess of $500,000. C. F. Braun Co. is the contractor on the project.

Design capacity rating on the new installation is set at 12,000 bbl. daily for gas-oil yield which is a 2-stream, overhead product and at 32,000 bbl. daily for heavy residuum feed material. Current rating on crude-charging capacity for the Torrance plant is 90,000 bbl. daily. Input to the refinery's thermal and catalytic cracking units is rated at 74,000 bbl. daily. The plant is also equipped with a 15,000 bbl. daily delayed coking unit, reforming facilities and an HF alkylation plant. The Torrance refinery is one of three plants operated in the West Coast area by General Petroleum Corp.

Montreal Refinery Plans To Cost $12,500,000

Expansion of the facilities at the Montreal refinery of British American Oil Co., Ltd., which is scheduled for completion in early fall of 1949, is estimated to cost upward of $12,500,000. Major equipment to be installed include crude-distillation and catalytic-cracking units and a catalytic-polymerization plant. Capacity on the crude unit is given at 14,500 bbl. daily, 2,500 bbl. daily more than the refinery's current crude-oil charging capacity rating. The new catalytic cracking installation, a fluid unit, is rated at 13,500 bbl. daily. Currently the refinery operates a 7,500 bbl. daily thermal-cracking unit. Production capacity on the new catalytic-polymerization plant is reported at 500 bbl. daily. Contract for the project is with M. W. Kellogg Co.

A liquid-propane plant and a catalytic-polymerization unit, rated at 200 bbl. daily each, are now under construction at Montreal. These two projects, scheduled for completion early this year, are contracted to the Koch Engineering Co. and are estimated to cost approximately $300,000. British American operates five refineries in Canada.

Rock Island Planning New Cracking Unit

Plans are under consideration by officials of the Rock Island Refining Corp. for erection of a 10,000-bbl. daily fluid catalytic cracking unit at Rock Island, Ind. The company now operates an 8,000 bbl. daily skimming and cracking plant at the Indiana location. Completion date for the tentative project is early 1949.

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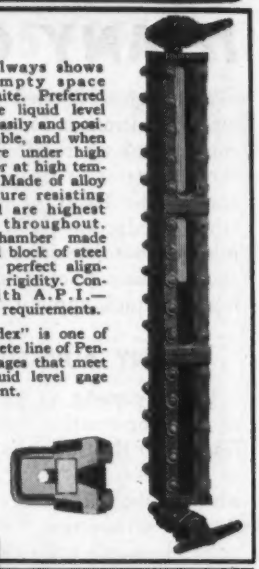

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Although developed originally to meet the demands for multiple-zone completions where oil from two or three zones must be produced separately, the Baker Model "D" Retainer Production Packer now is being used to isolate one or more zones, and for many other purposes including the typical applications above.

MANY ADVANTAGES

Before passing on to descriptions of the construction and operating features of this successful packer, let us consider the major advantages which make the Baker Model "D" Retainer Production Packer so economical, so safe and easy to run and operate . . . **IT IS COMPLETELY DRILLABLE**—You will never have to "mill up" a Baker Retainer Production Packer; **IT HOLDS BOTH WAYS** — The Packer is anchored against either upward or downward movement by two full sets of opposing slips. This feature always is desirable, and is vital in gas-injection or water-injection wells where constant pulsation is present.

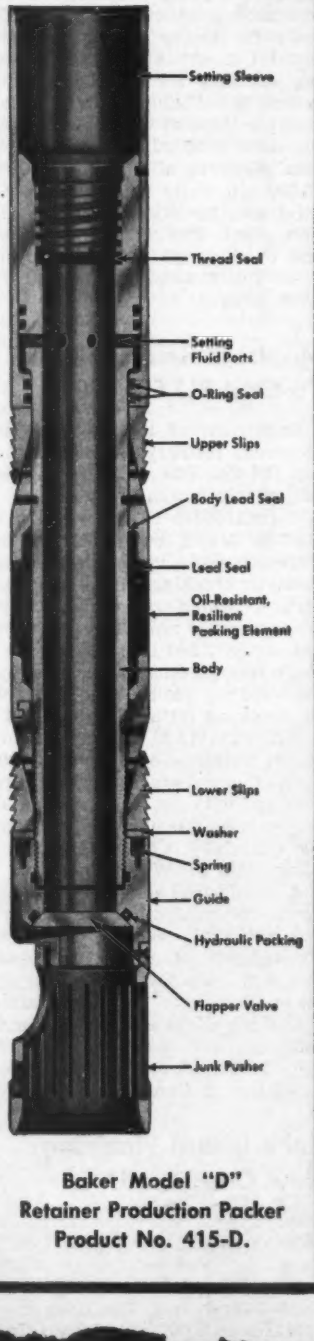
SUCCESSFUL UNDER HIGH BOTTOM-HOLE TEMPERATURES—The HYCAR Packing Element (backed up with lead seals) has proved in numerous wells to be effective against high temperatures, and is highly oil-resistant.

IT IS CORROSION RESISTANT—with cast iron construction that is far more resistant to corrosion than steel casing in which it is set;

THE TUBING IS FREE FROM THE PACKER—This advantage goes hand-in-hand with drillability, and means that you always are "well insured" against trouble.

NO "SET-DOWN" WEIGHT IS REQUIRED—When it is desirable, the tubing can be suspended in tension so that pressure bombs (and other devices) can be dropped readily through the tubing. You are not handicapped in your operations by "corkscrewed" tubing often resulting when set-down weight is applied to conventional type packers.

IT IS ADAPTABLE TO ALL WELL CONDITIONS—For high differential pressures possible across the Packer, and many other uses as set forth in the descriptions below.



Baker Model "D" Retainer Production Packer Product No. 415-D.

NO INTERFERENCE WITH OPERATIONS

The Baker Model "D" Retainer Production Packer is set permanently in the casing or liner. While it virtually becomes a part of the pipe, and will not move up or down regardless of pressure from either direction,—it permits maximum flexibility of operations. When it becomes necessary to remove the tubing, the Flapper Valve in the lower end of the Packer closes to isolate the formation below, and later the tubing is readily replaced without disturbing the Packer. It is never necessary to pull rods or tubing under pressure.

Gun perforators, suction bailers, acid jet guns and other devices may be run through the Packer and by the flapper valve for any necessary operations below the Packer; and the tubing can always be run back through the Packer after such work is completed. The well can be plugged back with cement to a new bottom through the Packer; or the Packer can be converted to a casing bridge plug; or cementing operations can be carried out through the Packer as though a cement retainer were being used.

VARIED APPLICATIONS

The Baker Model "D" Retainer Production Packer, with easily operated accessory equipment, has gained

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ISOLATING CASING

SALT WATER DISPOSAL

ACIDIZING

RE-PRESSURING

CAN PERFORM THEM SUCCESSFULLY

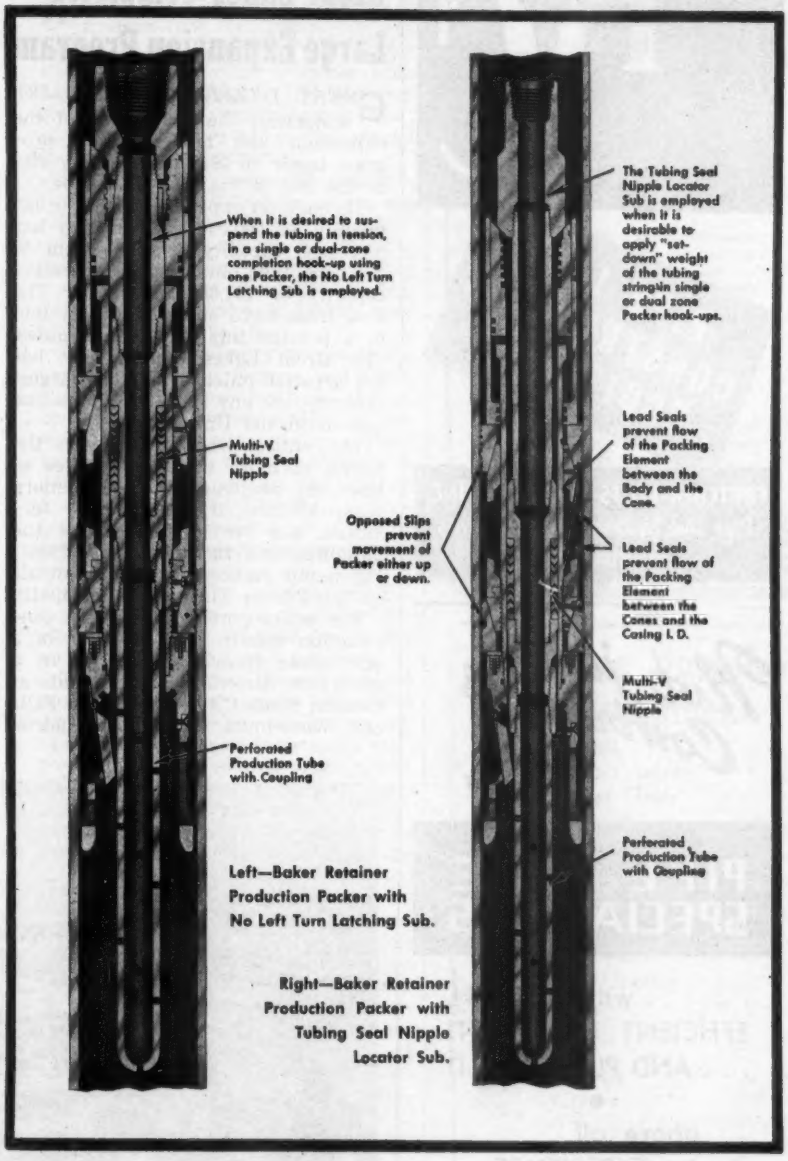
wide popularity because of its effective application to many needs in producing wells. It can be set and used for making a flow test, utilizing the Packer for production through the tubing, if the zone proves productive. If not productive, the zone can be squeeze cemented through the Packer. One Packer provides for production of two zones, either simultaneously with segregated production, or from each zone separately at different times. For complete flexibility of two-zone production, a Baker Change-Over Flow Tube (see illustration) with two Packers may be used. For three-zone production only two packers are used.

The Baker Retainer Production Packer is used for single-zone installation to prevent gas from cutting holes in the casing (often started by thread leaks) by transferring the pressure from the casing to the tubing. If and when the tubing leaks, it can be pulled, repaired and replaced through the Packer. The Packer will protect the casing, when corrosive fluid is being produced or injected, by allowing the annulus to be filled with oil and confining the corrosive action to the tubing only.

An interesting use of the Baker Retainer Production Packer is for pumping or flowing an upper zone through the tubing, and flowing a lower zone through the annulus between the tubing and the casing. This hook-up calls for use of the Baker Change-Over Flow Tube, and in addition to permitting segregated production as mentioned above, production of both zones through the tubing may be secured without removing the tubing string from the well.

GET ALL DETAILS

If you have any production problems which might be solved by the use of a Baker Model "D" Retainer Production Packer, we suggest you contact the nearest Baker representative; or address mail inquiries to Baker Oil Tools, Inc., Box 2274, Terminal Annex, Los Angeles 54, California, U.S.A.


When it is desired to suspend the tubing in tension, in a single or dual-zone completion hook-up using one Packer, the No Left Turn Latching Sub is employed.
Multi-V Tubing Seal Nipple
Opposed Slips prevent movement of Packer either up or down.
Perforated Production Tube with Coupling
The Tubing Seal Nipple Locator Sub is employed when it is desirable to apply "set-down" weight of the tubing string in single or dual zone Packer hook-ups.
Lead Seals prevent flow of the Packing Element between the Body and the Cone.
Lead Seals prevent flow of the Packing Element between the Cones and the Casing I. D.
Multi-V Tubing Seal Nipple
Perforated Production Tube with Coupling

Left—Baker Retainer Production Packer with No Left Turn Latching Sub.

Right—Baker Retainer Production Packer with Tubing Seal Nipple Locator Sub.

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PIPE LINES

Great Lakes Completes Large Expansion Program

GREAT LAKES PIPE LINE CO. announces the completion of the expansion and modernization program begun in 1945 immediately after the end of the war with Japan.

Through an expenditure of approximately $30,000,000 the company has increased capacity of the system 50 per cent, thus obtaining an operating capacity of 104,600 bbl. daily. The new lines have enlarged the system to a present total of 3,134.96 miles. The Great Lakes system now has the greatest mileage and the largest capacity of any products pipe-line system in the United States.

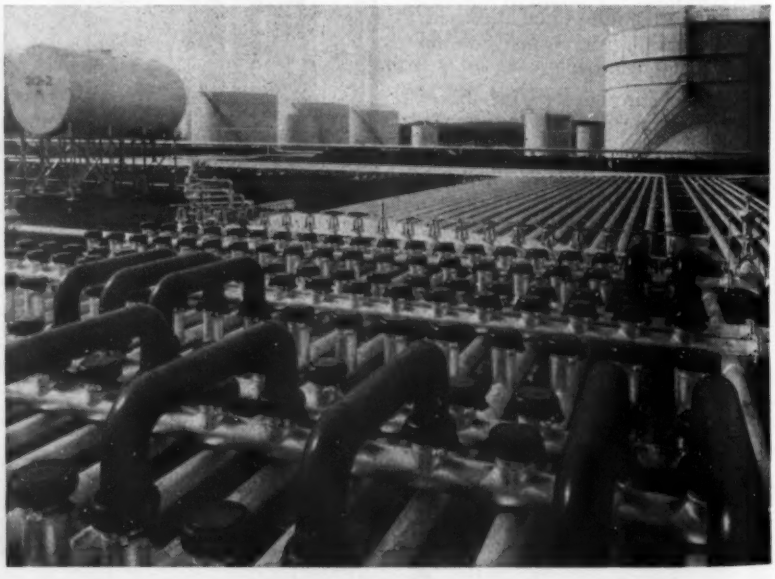
The entire program involves the laying of more than 1,200 miles of lines, the construction of 14 primary pump stations, 8 new delivery terminals, the remodeling of the the buildings and facilities at 14 existing pump stations, and 2 terminals on lines from Tulsa to Minneapolis.

The major portion of the line construction was in the projection of a new route from Kansas City in a northwest direction via terminals at Omaha; Sioux City, Iowa; Sioux Falls and Watertown, S. D.; Alexandria, Minn.; and Fargo and Grand Forks, N. D. All of these terminals are new with the exception of Omaha, which formerly was served by a line from Osceola, Iowa. The northern end of the line at Grand Forks is 65 miles from the Canadian border.

A third 8-in. line was laid on the 204-mile route from Barnsdall, Okla., to Kansas City. A new 85.76-mile was laid from El Dorado, Kans., refineries to connect with this section at the Humboldt, Kans., pump station. Between Ponca City and Barnsdall, Okla., two 6-in. lines were replaced by an 8-in. line. The 6-in. pipe in the No. 2 Tulsa-Barnsdall line was replaced by an 8-in. These changes provided lines with matching capacities between these points and the Barnsdall-Kansas City lines.

At primary stations north and south of Kansas City, the former policy had been to use two units for each line so that each unit handled half the pumping capacity. In nearly all cases, in the type of operation referred to, each unit consisted of a reciprocating pump driven by a diesel engine.

The new policy carried out in the modernization program was to replace these units with a single centrifugal pump driven by the same model diesel used on the new line.



Sioux City, Iowa, terminal of Great Lakes Pipe Line Co., is typical of new terminals of the company's system. Piping is laid above ground to avoid corrosion. Segregation of products and flexibility in the handling of tankage are accomplished by the design of the loading manifold. There are individual lines to each tank

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PIPE LINE SURVEYS

This meant that the number of pumps and the engines at each station was halved. At the Kansas City station three electric Rannett units were installed.

Modern Equipment for Humble Products Line

HOUSTON.—Installation of the most modern-type equipment is expected to be completed the latter part of February by Humble Pipe Line Co. at the Hearne and Baytown stations of its Baytown-Irving, Tex., products pipe line which was placed in operation last summer.

Four different grades of gasoline, two aviation and two automotive, are now being handled in the 8-in., 280-mile line. It originates at Humble Oil & Refining Co.'s Baytown refinery, now running about 240,000 bbl. daily, and terminates at Irving, near Dallas and Fort Worth.

Intermediate delivery terminals are located at Houston, Hearne, and Waco, with the Hearne location also a booster pump station similar in design to the originating station at Baytown. Equipment at both stations is designed for future capacities of up to 30,000 bbl. daly. The line is protected against corrosion by a double application of pipe-line enamel reinforced with Fiberglas and shielded with asbestos felt. Cathodic protection is contemplated. Positive-displacement meters are used for receipt and delivery of all four products.

The pump-station design includes modern control equipment which will make the operation semiautomatic. Special features include pressure controllers, automatic pump venting, and motor operation of valves in controlled starting and stopping sequences. Of interest is the use of temperature-recording instruments of the thermocouple type which provide alarm and shutdown functions.

The pump-station buildings are steel roofed with brick and stone exteriors and tile and terrazzo floor interiors. In each building, the pump room is maintained under slight vacuum, and the control room, where electrical equipment is located, is under slight pressure. These two rooms are separated by a sealed, wire-reinforced glass partition.

In the control room overlooking the pump room is the central control point for station operation. A lucite-topped desk shows a schematic layout of the station piping and equipment. Lights on the desk indicate the positions of valves and diversion of flow within the station piping. At the control desk main pump units are started and stopped, and pressures, temperatures, and flow rates either indicated or recorded.

To provide remote and semiautomatic switching of products into the main line at Baytown, a dual suc-

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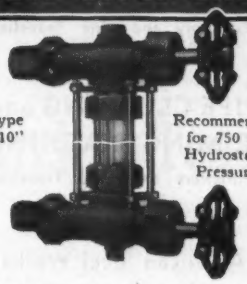

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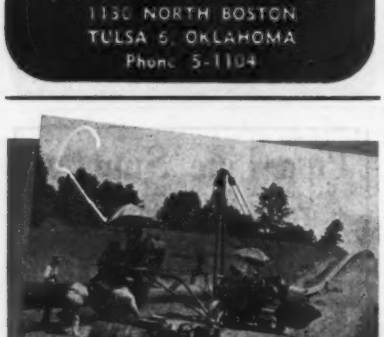

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tion system is used along with the two motor-operated valves which may be opened and closed by push buttons on the control desk. This method allows arrangement of tank and manifold lines prior to the actual switching operation.

Station equipment includes four-stage, double-volute, centrifugal pumps operated two in series at the two stations to provide maximum discharge pressures of 1,100 psi. Direct-connected, explosionproof motors of 400 hp. are used to drive the pumps.

Vertical-type, motor-driven centrifugal pumps are located at each tank at Baytown to make possible the operation of the main-line units with positive suction pressures and allow the use of meters and strainers at low pressure.

Jones Heads Pipe Line Contractors Association

The Pipe Line Contractors Association was organized in Dallas last week by 14 pipe-line contracting firms for the purpose of handling general problems connected with their operations. Application will be made to become a branch of Associated General Contractors when this national organization convenes in Dallas on February 9. In the meantime it is expected that membership in the Pipe Line Contractors Association will include a large part of the firms in the pipe line contracting business.

Officers and directors in the Pipe Line Contractors Association are: T. R. Jones, president; H. C. Price, first vice president; Ray L. Smith, second vice president; J. C. Britton, secretary; A. L. Forbes, treasurer; J. R. Horrigan, director; and R. H. Fulton, director.

Ownership Changed Parkhill Truck Co.

Roy F. Parkhill becomes president and Gant W. Fowler, vice president and general manager of Parkhill Truck Co., pipe-line stringing contractors, as the result of a change in ownership and management. This has come about by the recent purchase of all of the stock in the Parkhill company by the new owners from Midwestern Constructors.

Fowler is making his headquarters at the company's office and warehouse at 2000 East Jasper Street, Tulsa. Parkhill will continue to reside at Tucson, Ariz. The Parkhill company is establishing offices in the Gillespie Building, El Paso, Tex.

During the past year Parkhill has supervised the company's operations for the stringing of 741 miles of 26-in. pipe for El Paso Natural Gas Co.'s line from Eunice, N. M., to Blythe, Calif.

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LUBBOCK, TEXAS

Two New Strikes on West Flank of Bend Arch in Texas

TWO new successful wildcats following one another in rapid succession, both within a short distance of Jameson pool (a late 1946 discovery), in northwest Coke County, Texas, are adding to the attention already being directed toward the west flank of the Bend Arch as a highly favorable area for finding new oil fields.

The first new strike was Sun Oil Co. 1 J. B. Walker, in C. Brockhuysen Survey 526, some 4 miles southwest, and across the Colorado River from Jameson field (also a Sun discovery). On potential test the well flowed at the rate of 447 bbl. per day of 48°-gravity oil, through a ¼-in. tubing choke, from open hole at 6,230-50 ft. Gas-oil ratio was 1,201 cu. ft., tubing pressure 1,000 psi., and casing pressure 1,475 psi. With an elevation of 2,029 ft., datum on the Reef limestone is —4,085 ft., and —4,094 ft. on the Crinoidal.

The second new pool opener, also by Sun (making three in a row for that company) was its 1 Arledge, NE SW Section 261, Block 1-A, H&TC Survey, about 7½ miles east and 1 mile north of Jameson field. This well first flowed 94 bbl. of 43°-gravity oil in 23½ hours through a ¼-in. tubing choke, with flowing pressure on the tubing ranging from 470 down to 150 psi., and casing pressure from 1,200 down to 925 psi. On later tests, through various-sized chokes, the well made 127.7 bbl. of oil in 20 hours and 40 minutes. There was no water. The rig has already been moved to an offset location for 2 Arledge, 1,800 ft. from the north and east lines of Section 261.

The Arledge is producing from open hole at 6,602-20 ft., in what has been tentatively identified as the Marble Falls limestone, just below the Crinoidal of the Strawn. Both Jameson field and the Walker discovery are Crinoidal producers. The nearest producing well to the Arledge is the Sun 1 Allen Jameson, discovery well of that field. Jameson had the Crinoidal pay at datum of —4,119 ft., and this compares with the Marble Falls datum of —4,331 ft. in the Arledge discovery.

Jameson field had 11 wells completed during 1947, after its discovery in late 1946. Of these, 10 were oil producers and 1 was dry. This is a very good record, and makes any other strikes in the area look more promising. The two new fields will encourage and increase the amount of work going on in a whole row of counties along the west flank of the Bend Arch. Plays in Sterling, Tom Green, Irion, and Schleicher counties, as well as other areas in Coke, will be stimulated.

The location of these strikes on the map may be misleading, since they look as though they might be an eastern extension of West Texas areas. Geologically they are known to be definitely associated with the west flank of the Bend Arch, and more closely related to fields farther east and northeast.

Somewhere west of these tests, there is a sharp stratigraphic break into a sedimentary section normal to the Midland black-shale basin.

For previous articles on this area, see The Oil and Gas Journal, December 7, 1946, page 143, and April 19, 1947, page 149.

HIGHLIGHTS OF WEEK'S DEVELOPMENTS

TEXAS GULF COAST.—Matagorda County wildcat indicates possible new production for Texas Gulf Coast district. Operators now coring in oil sand at 6,704 ft. with plans to core approximately 100 ft. deeper.

CALIFORNIA.—Standard of California is delayed by frozen drill pipe at their deep wildcat test in Ventura County. Well is currently 127 ft. short of world's depth record, and circulation is being maintained preparatory to drilling ahead if fish can be recovered.

PERMIAN BASIN.—Phillips Petroleum Co.'s Ellenburger discovery in the southwest extension area to the Fullerton Devonian field, Andrews County, encounters additional pay section in deepening to 10,425 ft. Total pay section is now reported to be 70 ft.

ROCKY MOUNTAIN AREA.—Texas Co. wildcat in the Powder River Basin, Wyoming, swabs 87 bbl. of 27°-gravity oil in 17 hours from Converse sand. This is first producer based on seismic work in this basin area. In the South Steamboat Butte area of Fremont County, Wyoming, Brinkerhoff-Sohio encounters new pay in the Phosphoria. Wildcat tests 5,000 ft. of oil in 2 hours, but is being deepened to the Tensleep.

NORTH CENTRAL TEXAS.—Continental's Montague County wildcat, 1 mile west of Stoneburg, reports second pay section in conglomerate. A 15-minute drill-stem test at 6,175-6,214 ft. shows gas at surface in 1½ minutes and flows oil in 12 minutes. First pay section in conglomerate was reported at 6,127-35 ft.

ARKANSAS.—Union County wildcat encounters 17 ft. of saturated Smackover limestone. May either open new field or prove extension to Smackover field.

OKLAHOMA.—Magnolia Petroleum Co. proves first Bromide sand production for North Antioch pool, Garvin County. G. W. Deck et al define western limits of Iconium Northwest pool, 1947 discovery.

SOUTH LOUISIANA.—Kerr-McGee resumes drilling operations in deep exploratory venture off Terrebonne Parish shore in Gulf of Mexico. The 1 State, 12 miles northwest of production in the Coon Point field, now drilling ahead after setting surface pipe at 2,265 ft. Projected depth is 12,000 ft.

SOUTHWEST TEXAS

Starr County Test Showing for Production

CORPUS CHRISTI.—Coastal Refineries, Inc., & W. D. Kenhard 1 Louis Pena, wildcat test in southeastern Starr County, approximately 2 miles north of Samfordyce field and 1¾-mile northwest of most northerly production at Sullivan City field, is perforating for completion attempt at 4,365-69 ft., after drill-stem test had indicated oil production at that depth. Total depth is 4,437 ft., with 5½-in. casing set on bottom. A drill-stem test at 4,365-71 ft. recovered 870 ft. of pipe-line oil and 275 ft. of mud and oil, with 143 psi. working pressure, through ¾-in. chokes top and bottom. This well is in Tract 151 of Porcion 38.

Fred M. Manning 1 Ross-Singleton, wildcat in western San Patricio County, approximately 3 miles north of Mathis in I&GN Survey, is testing gas, through perforations at 3,490-95 ft. Total depth is 5,010 ft., with 5½-in. casing set to 4,830 ft. for the completion attempt. This well has also shown gas production at 2,756-61 ft.

O. W. Killam 1 Marrs McLean, wildcat test in southeastern Webb County, approximately 1½ miles northeast of North Albercas field, flowed gas on test at 2,293-97 ft., through ¼-in. chokes top and bottom, and developed 310 psi. working pressure in 47 minutes. On test at 2,307-13 ft. had developed 250 psi. working pressure and recovered 500 ft. of oil in 1½ hours. Operators are continuing to test at 2,313-18 ft. This well is located in the Las Albercas Grant, 6½ miles southwest of Bruni.

In Jim Wells County, ¾ mile south of Premont townsite and 1½ miles south of Seeligson field, W. A. Richardson et al 1 Augusta Franz, wildcat test, recovered 90 ft. of oil-cut mud with 1½ psi. working pressure in 20 minutes, on drill-stem test at 6,080-85 ft. Operators are drilling ahead.

Hiawatha Oil & Gas Co. 1-A Denman, wildcat almost 1 mile southwest of Longhorn field, in Duval County, has set 5½-in. casing to 5,120 ft. for completion. Drill-stem tests had indicated gas-condensate production at 4,163-72, 4,848-52, and 5,054-78 ft. Total depth is 5,757 ft.

MISSISSIPPI

Hinds County Test Is Conditioning Hole

JACKSON.—Gulf Refining Co. 2 R. W. Trotter, 15-7n-2w, on the Brownsville Dome, Hinds County, is conditioning hole after taking drill-stem tests on oil shows noted in tight sands and sandy shales immediately underlying the Gas Rock. Rough descriptions on these cores also indicated the presence of some limestone, dolomite, and anhydrite, suggesting cap-rock material. The packer gave way on the first two attempted drill-stem tests, but on the third, with double packers set at 4,418 ft. and 4,425 ft., testing to total depth of 4,456 ft., recovery was drilling mud with no show on 26 minute test.

At La Grange, Adams County, James E. Kemp 3 H. M. Marks, 8-6n-2w, north outpost well, is preparing to test after perforating casing in the Wilson sand zone. The split in 5½-in. casing at 2,140 ft. was successfully squeezed. All perforations were squeezed and casing milled out. Operators then perforated at 6,237-6,426 ft. and now are running production packer.

In the Oldenburg area, Franklin County, Danciger Oil & Refining Co. 1 Stark McKinney et al, 25-7n-2e, is preparing to perforate 7-in. casing from 10,537-10,538 ft. for initial production tests. Casing was set on bottom at 10,539½ ft. and cement drilled out to total depth of 10,538½ ft. inside casing.

SOUTH LOUISIANA

Second Producing Sand for New Discovery Well

NEW ORLEANS.—A second producing sand apparently has been opened in The Texas Co. 1 Lottie Land & Development Co., new discovery well in the East Krotz Springs area, Pointe Coupee Parish, when it flowed 165 bbl. of 48.5°-gravity oil daily through perforations at 9,097-9,116 ft. with a flowing pressure of 2,800 psi. Previously, the well had established production for the first time in the parish by flowing 190 bbl. of 35°-gravity oil daily through perforations at 10,188-228 ft. Total depth is 10,509 ft.

Texas Co. 1 State-Willow Bayou Lease 190, potential new oil discovery in the Johnson's Bayou area of Cameron Parish, on the east side of Sabine Lake, is flowing at the rate of 96 bbl. of fluid per day through a 12/64-in. choke, 96 per cent oil, 2 per cent water, and 2 per cent sand, on test through perforations at 8,791-2,802 ft. Total depth is 12,285 ft.

Magnolia Petroleum Co. 1 Four C. McPherson, 26-5s-8w, which has opened a new field 8 miles northeast of Bear field, Beauregard Parish, is testing a second sand with perforations at 8,414-19 ft., flowing 120 bbl. of oil per day through ¼-in. and 6/64-in. chokes, with a gas-oil ratio of 771, and flowing pressure of 1,150 psi. On initial test at 8,896-8,902 ft., the well flowed 47 bbl. of 55°-gravity oil through a ¼-in. and ⅛-in. chokes. Total depth is 9,096 ft. with 5½-in. casing cemented at 9,003 ft.

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LA.-ARK.

Union County Test Showing For New Field

EL DORADO.—In Union County, G. H. Vaughn 1 Annie Smith, 8-16s-17w, was testing 17 ft. of Smackover limestone pay, and showing for a new field, or extension to Smackover field. It topped the Smackover at 6,310 ft., on an elevation of 169 ft., and had porosity at 6,331 ft., with total depth at 6,348 ft. A drill-stem test between 6,320-48 ft., open 45 minutes, recovered 550 ft. of clean oil, 35 ft. of oil-cut mud, and 15 ft. of brackish water. Operators ran electric log and were preparing to perforate.

Columbia County wildcat reports included H. L. Hunt 1 Bodcaw, 17-19s-22w, drilling below 7,735 ft., and presumed to be in the Cotton Valley. R. W. O'Mears 1 Moody, 12-16s-22w, was drilling below 6,230 ft., in what has tentatively been called Cotton Valley. G. H. Vaughn 1 McCall estate, 30-17s-18w, had total depth at 6,712 ft. in sidetracked hole, and was fishing drill pipe.

In Hempstead County, Carter Oil Co. 1 Nora Carrigan, 18-13s-23w, 5½ miles southeast of Hope, had a slight show of oil in circulating a drilling break at 2,242-49 ft. It was cored on to 2,251 ft., recovering 2 ft. of shale. Operators will drill-stem test.

In Bienville Parish, 2 miles northeast of Bear Creek, C. H. Murphy et al 1 George Pipes, 19-17n-5w, flowed 15,000,000 cu. ft. of gas a day through ¼-in. choke, from Travis Peak perforations at 7,649-82 ft. Tubing pressure was 3,050 psi.

In Ouachita Parish, The California Co. 2 Breece Lumber Co., 30-17n-5e, set protection string to 8,948 ft., total depth, then moved the rig off due to high waters from nearby Bayou LaFourche. The well had reported no shows of oil or gas, and operators said it may be next spring before further work is done.

APPALACHIAN FIELD

New Wildcat Starting In Mason County

PITTSBURGH.—In Cooper district, Mason County, West Virginia, Columbian Carbon Co. is starting a new wildcat on the Clyde Jordon farm for its fourth in the county. Located on the Ravenswood Quad, it is situated 4.28 miles south 38° 55′ and 1.21 miles west 81° 55′ starting at an elevation of 677.7 ft.

In Kermit district, Mingo County, E. C. Ware, trustee, is testing 1 L. E. Chafin in the Weir sand, total depth 1,814 ft., where an oil pay was struck which produced 50 bbl. the first day along with 150,000 cu. ft. of gas and on the eighth day had declined to 6 bbl. This is in gas territory.

In Poca district, Kanawha County, Columbian Carbon Co. completed another Big Lime oil well on the H. H. Parsons tract good for 45 bbl. initial, with 150,000 cu. ft. of gas, total depth 1,850 ft.

In Ravenswood district, Jackson County, Columbian Carbon Co. drilled through the Oriskany sand in 964 Blanche Ashcraft with a final gage of 94,000 cu. ft. of gas and will shoot it. In Ripley district, West Virginia Gas Corp. topped the Oriskany sand at 5,088 ft. in the test 548 Brady D. Hickel with only a show of gas to 5,118 ft.

On Chestnut Ridge in Wharton Township, Fayette County southwest Pennsylvania, Orville Eberly et al, drilling a test on the J. F. Murray farm, struck about 500,000 cu. ft. of gas in the Speechley sand (Chemung-Upper Devonian) 1,880-96 ft. and continued to 1,985 ft. where the gas had declined to about 300,000 cu. ft. This test is scheduled for the lower Devonian which

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would be a reduced hole size if the gas were cased off. The rock pressure reached 300 psi. in 3 hours.

In Georges Township, Fayette County, the test of Peoples Natural Gas Co. on George Steve farm is being plugged as a dry hole after drilling through the Oriskany to 8,788 ft.

MICHIGAN

Two Oilers, Three Gasers In Week's Completions

SAGINAW.—Five of eight wildcats completed in Michigan in the past week were rated as producers, two as oil wells, three as small gas producers. Don Rayburn 1 Donahoe and 1 Goodroe, both in Section 18 of Deep River Township, Arenac County, near Deep River field, were gaged after acidizing at 40 bbl. and 120 bbl. a day, respectively. The wildcat gas wells had a combined initial potential of 1.3 million cubic feet a day. They appeared suited for community use and are in Sections 1 and 2 of Salem Township, Washtenaw County, developed by Homer L. Heath, agent. The three dry-hole wildcats were in Allegan, Arenac and Day counties.

Completions for the week totaled 14 and total new initial crude potential was 1,870 bbl., 1,440 bbl. of it from two more producers in the Garfield pool of Newaygo County. Other production was a 125-bbl. well in Claybanks of Oceana, a 30-bbl. well in Tuscola County's Arbela field and a 15-bbl. well in Columbia Township, Van Buren County.

In the mid-winter lull only 11 new locations were announced, 5 being in Allegan County, 1 each in Newaygo, Missaukee, Bay, Ionia, and Van Buren counties.

MICHIGAN SUCCESSFUL WILDCATS

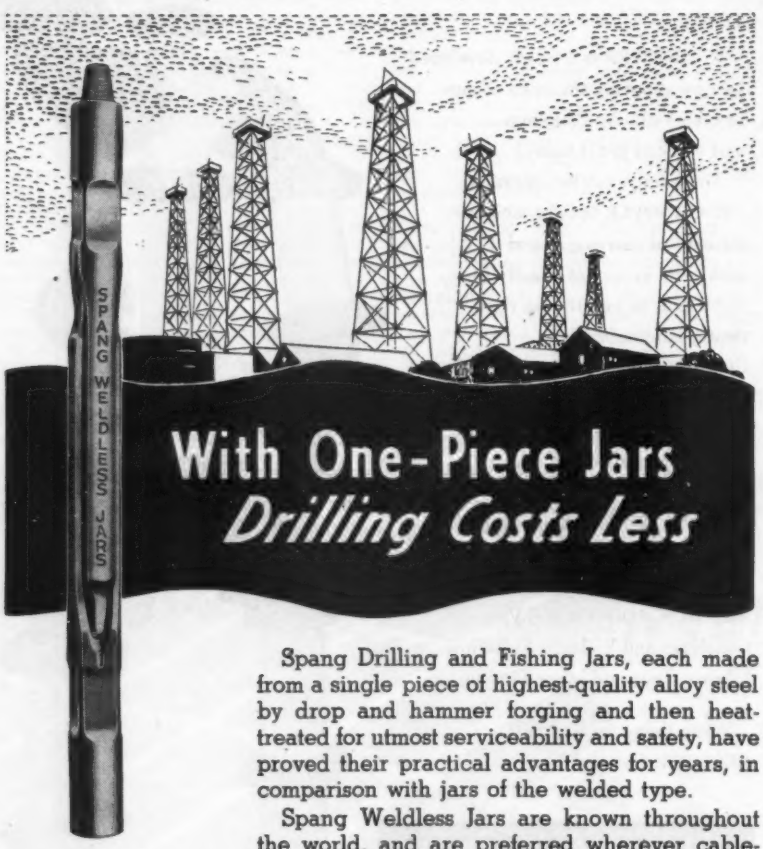
Arenac County, Deep River Township: Don Rayburn 1 Edward P. Donahue, NE SE SE 18-19n-4w, pumped 40 bbl., acidized, in Dundee, TD 2,950 ft.

Don Rayburn 1 Glen Goodroe, SE NE SE Sec. 18, pumped 120 bbl., acidized, in Dundee, TD 2,898 ft.

Washtenaw County, Salem Township: Homer L. Heath, agent, 1 M. A. Baker, SE NW NE 1-1s-7e, Dundee gas well, 90,000 cu. ft., TD 823 ft., plugged back to 808 ft.

Homer L. Heath, agent, 1 Milo Dugan, SW NE NW Sec. 1, gas well, 9,220,000 cu. ft., TD 743 ft.

Homer L. Heath, agent, 1 C. R. Ely, SE NW SE Sec. 2, gas well, 320,000 cu. ft., TD 823 ft., PB 818.



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TEXAS GULF COAST

New Oil Sand for Sabine Tram Field

HOUSTON.—A new oil sand for Sabine Tram field, Newton County, has been opened by Gulf Oil Corp. 1 J. P. Bevil, Sr. et al, located in the R. I. Richardson Survey, 1,615 ft. southwest of Humble Oil & Refining Co. 1 Hankamer discovery well. Drilled to a total depth of 8,027 ft., the well flowed 98 bbl. of 38°-gravity oil per day through a ⅛-in. choke, flowing pressure 2,025 psi. The 5½-in. casing was cemented at 8,023 ft., and production is through perforations at 7,366-70 ft.

W. C. McBride, Inc., & Atlantic Refining Co. 1-B Stockton, new discovery in the Yegua zone approximately 2 miles southwest of Charco, in western Goliad County near the Karnes County line, is still testing and was reported flowing approximately 50 bbl. of oil per day through a ½-in. choke, with 20 psi. tubing pressure, casing sealed. Production is through perforations at 4,590-95 ft. It is located in the Victor Blanco Grant, 3 miles north-northeast of Hord's Creek-Wilcox field of Goliad County.

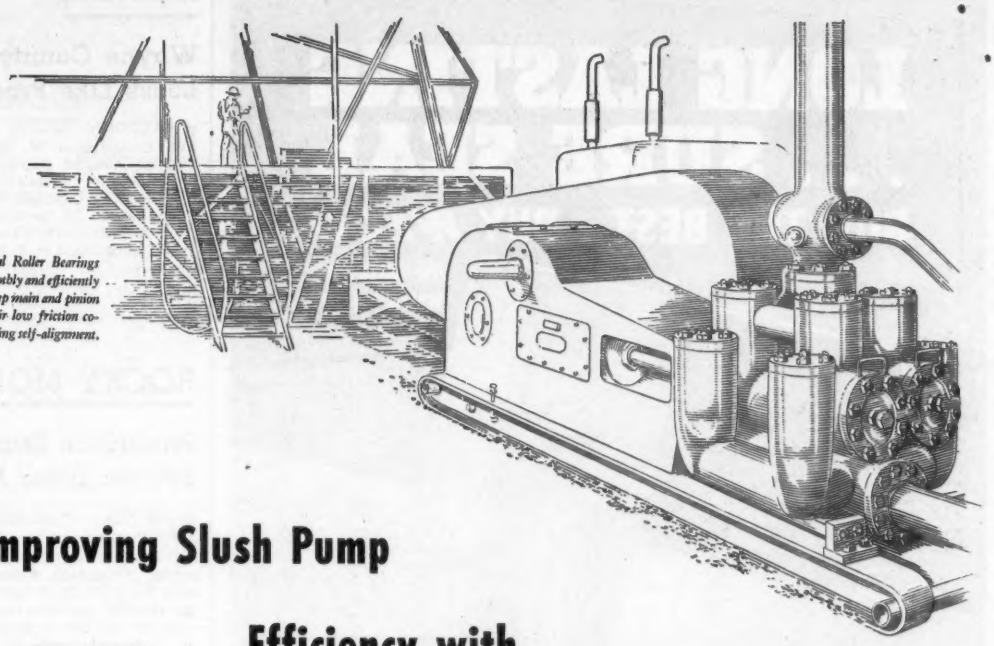
The Texas Co. 2 Annie Schilling is first oiler to be completed in the Marginulina sand in Jergins field of Chambers County. On potential gage it flowed 183 bbl. of 36.1°-gravity oil daily through a 9/64-in. choke with 990 psi. flowing pressure on the tubing. Total depth is 6,550 ft., with perforations at 6,395-99 ft. for completion. Top of saturation was found at 6,390 ft.

Floyd L. Karsten 1 W. T. Ellis in Twin Basin gas field, west of Withers oil field in Wharton County, is producing from a third pay level. Drilled to a total depth of 7,154 ft., with 5½-in. casing cemented on bottom, perforations were made from 6,586-90 ft. for completion. The well flowed dry gas with 2,250 psi. pressure on tubing and 2,300 psi. on the casing. The well is shut in with no gage made. Shut-in pressure is 2,450 psi. Other producing levels for the field are in the 7,000 and 6,700-ft. levels.

Skelly Oil Co. 1 C. S. Jones, extension test between the East Bay City and Bay City field producing limits, Matagorda County, has made a potential gage. It flowed 1,285,000 cu. ft. of gas daily through a ½-in. choke with 3,795 psi, pressure on the tubing. It also flowed 39.84 bbl. of 42.1°-gravity condensate and had an open flow calculation of 196,000,000 cu. ft. of gas per day. Total depth is 10,286 ft., with perforations at 10,096-124 ft.

TEXAS—DISTRICT 3—SUCCESSFUL WILDCAT

Newton County: New oil pay, Gist pool—Standard Oil Co. of Texas 1 J. S. Peters et al, in J. D. Bland Sur., TD 7,255 ft., top sand 7,190 ft. Hackberry, perf. 7,196-97 ft., IP: 156 bbl. oil per day through a 9/64-in. choke, GOR 544, TP 1,175 psi., grav. 38.8°, no water.



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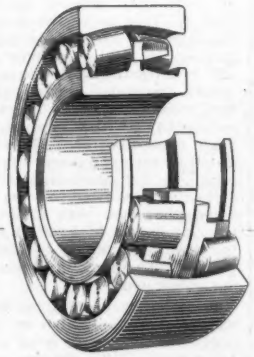

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ILLINOIS

Wayne County Test Looks Like Producer

MATTOON.—George & Wrather and C. Chandler 1 M. Monroe, NE NW NE 27-2s-6e, Wayne County test 3 miles south of Sims and 2 miles northwest of Mayberry pool, swabbed 35 bbl. of oil in 4 hours after 20 perforations in McClosky lime at 3,329-30 ft. Total depth is 3,440 ft.

J. Frank Hinkle 2 Bowers, NW SE NW 16-3n-7e, Clay County, 3 miles northeast of Flora, has been completed for 1,100 bbl. daily from McClosky at 2,966-85 ft. Well was treated with 5,000 gal. of acid.

ROCKY MOUNTAIN

Production Established in Powder River Basin Wildcat

DENVER. — Production has been established in the Powder River basin wildcat being completed by The Texas Co. at Adon, Campbell County, Wyoming. The well is 1 Unit, C NW NE 2-52n-72w, and on 17-hour test during the past week the operator swabbed 87½ bbl. of 27°-gravity oil from the Converse sand between 8,990-9,007 ft. This zone was shot with 26 qt. of nitroglycerin after tests indicated that the productive zone may have been cemented off in attempting to squeeze behind the casing for water shutoff above and below the productive zone. There was no water recovered on the swab test. Casing had been cemented at 9,090 ft., which made shooting the well hazardous. The Converse sand, in the Minnelusa formation (Pennsylvanian), showed oil on drill-stem test when the zone was drilled but the well was deepened to 9,945 ft., total depth, in the Madison, before current testing. Pump will now be installed in the well, and testing continued.

The discovery of oil in this well, located on a seismograph high in the geographical center of the basin, is of great importance for future drilling in the area. This is the first well to find oil in this area, and as a result of the discovery an estimated ½ million acres of land through the basin has been leased by various Rocky Mountain operators during the past 3 months. Thirty miles northeast of Adon Pure Oil Co. is now drilling a wildcat test at 1 Unit, C Lot 9, 34-56½-69w, Rocky Point, on the rim of the basin. This well is also projected to test the Pennsylvanian section, productive at Adon.

South Steamboat well finds new pay.—Drill-stem tests made by Brinkerhoff Drilling Co. and Sohio Oil Co. in the South Steamboat area, Fremont County, Wyoming, definitely indicate a commercial producer in that horizon. The well is 3 Tribal, NW SE NW 9-3n-1w (WRM), an extension one location east of the second producer in this area and ¼ mile southeast of the discovery well, which was completed last April. The test was made between 6,820-6,774 ft. and in 2 hours the recovery was 5,000 ft. of oil and 200,000 cu. ft. of gas. The oil is of 34°-gravity.

One-half mile south of the Brinkerhoff-Sohio test Tide Water Associated Oil Co. is now drilling at 41-16 Tribal, NE NE NW 16-3n-1w (WRM), midway between Pilot Butte and South Steamboat fields. This well is now drilling below 4,046 ft. and on test of the third Frontier the well made 1,320 ft. of mud and water. The test is reported running low structurally.

Mountain Front, Montana, wildcat.—After recovering fish, General Petroleum Corp. has shut down for the winter at the mountain-front wildcat on the Black Leaf, Teton

County, unit at 1 Unit, CWL 14-26n-9w. The well is at 5,838 ft., total depth, and is scheduled to be drilled below 8,500 ft. for a thorough test of a geophysical high.

PERMIAN BASIN

Phillips' Andrews Discovery Finds Additional Pay

MIDLAND.—Phillips Petroleum Co. 5-M University, Section 31, Block 13, University Lands, Ellenburger discovery in the southwest extension area to the Fullerton Devonian field of Andrews County, found additional pay section in drilling to 10,425 ft. At this report, the total pay was 70 ft., being topped at 10,355 ft., and operators were said to have requested a supplemental drilling permit to deepen to 10,800 ft.

The last reported test, between 10,379 ft. and total depth, flowed 77 bbl. of 44.5°-gravity oil in 1 hour. Choke size and flowing pressures were not specified.

The 5-M University, on an elevation of 3,269 ft., is correlated some 218 ft. high on the Ellenburger top with the nearest producer, Mid-Continent Petroleum Corp. 3-11 University, Section 6, Block 13, 2 miles to the northeast. Location of the new strike is some 6 miles south of Ellenburger production on the north end of the Fullerton area.

Plymouth Oil Co.'s Sterling County Ellenburger prospect, the 1 Mrs. Willie Mae Foster, 12 miles northwest of Sterling City, Section 56, Block 2, H&TC Survey, was said to have unloaded four times while pulling drill pipe, following an 11-hour drill-stem test from 8,316-76 ft., total depth. Final recovery was 3,800 ft. of 48-gravity oil and some 600 ft. of oil and gas-cut drilling mud, with no shows of formation water.

In Crockett County, 6 miles southeast of the east side of Barnhart (Ellenburger) field of Reagan County, Continental Oil Co. 1-A-13 University, swabbed 52 bbl. of new oil and 10 bbl. of drilling mud and acid water in 8 hours.

Superior Oil Co. of California was reported ready to start an Ellenburger wildcat in southwestern Reagan County, about 2 miles south of Big Lake field. It will be the 1-8-C University, Section 25, Block 8, and 13 miles southwest of the town of Big Lake. Scheduled depth is 10,500 ft. with rotary.

Humble Oil & Refining Co. 1 J. A. Lutrick, Section 14, Block D-8, PSL Survey, Hale County Pennsylvania prospect, 4½ miles southwest of the Petersburg well, was retreated with 5,000 gal. of acid in open hole between 7,908-87 ft., after which it kicked off without swabbing and flowed 80 bbl. of fluid the first hour: At the end of 4½ hours it had flowed 270.3 bbl. of oil, with some acid residue, but no water. Later reports said the flow had subsided and operators were swabbing.

Ector County received two new wildcats this week. Amerada Petroleum Corp. scheduled its 1 Hattie E. Connell, 656 ft. from south and 714 ft. from east lines of its lease in the NW of Section 12, Block B-16, PSL Survey. Contract depth is 9,000 ft. Location is 1½ miles north of Gulf Oil Corp. 20-B-E Connell, which completed as a 1-mile northwest extension to the Jordan Ellenburger field.

The other test is Fred W. Shield, San Antonio, and Don M. Oliver and Fred Kotyza, Midland, 1 Walter Cowden, Section 16, Block 42, T&P Survey. Location is 1 mile southeast of McMillen et al 1 Emmons, recently completed San Andres discovery slightly over 1 mile south of the South Cowden limestone field. Contract depth on the new field is 5,000 ft.

In Andrews County, Sinclair-Prairie Oil Co. 2-173 Skelly-University became the second completed producer in the new Shafter Lake Devonian field, with a calculated natural daily flowing potential of 1,339 bbl. of 38.3°-gravity oil a day. The rate was based on a 6-hour flow through ½-in. choke. Total depth was 10,021 ft., and gas-oil ratio was 330 ft.

SOUTHEAST NEW MEXICO

HOBBS.—Delfern Oil Co. 1 Lea-State, 8-17s-34e, opened new San Andres production 3 miles northwest of the Vacuum field, west central Lea County, flowing 111 bbl. of 37°-gravity oil per day, after acidizing limestone pay at 4,673-23 ft.

Amerada Petroleum Corp. 8 Andrews, 12-20s-36e, in the deep sector of Monument, recovered 280 ft. of 33°-gravity oil on a drill-stem test from 8,570-8,601 ft. The tool was open 5½ hours and, in addition to the oil, recovered 180 ft. of heavily oil and gas-cut mud, and 210 ft. of mud showing oil, gas and water. Gas was estimated around 30,000 cu. ft. daily.

Magnolia Petroleum Co. 1-A Santa Fe, 30-9s-36e, had a show of oil at 4,832-40 ft. in the San Andres, and after acidizing, swabbed 127 bbl. of fluid in 24 hours, cutting 50 per cent oil, 40 per cent paraffin and 10 per cent salt water.

Shell Oil Co. 1 Taylor-Glenn, 3-21s-37e, continued swabbing at the plugged-back depth of 8,108 ft., and yielded 2 bbl. of oil, being mostly water, in 24 hours.

SOUTHEAST NEW MEXICO SUCCESSFUL WILDCAT

Lea County: Delfern Oil Co. 1 Lea-State, SE NW 8-17s-34e, 3 mi. NW Vacuum field, flowed 110 bbl. oil in 8 hours through 1-in. choke, 37° grav., GOR 1,040 cu. ft., top San Andres pay 4,673 ft., tubing set 4,720 ft., TD 4,73 ft., elev. 4,113 ft.

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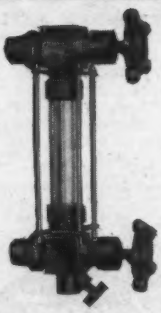

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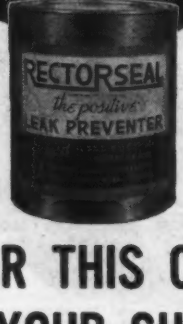

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N. CENTRAL TEXAS

Montague Wildcat Finds Second Pay Section

WICHITA FALLS.—A second pay section in the conglomerate was reported for Continental Oil Co. 1 C. P. Miller, Montague County wildcat 1 mile west of Stoneburg. Deepened to 6,252 ft., and with packer at 6,240 ft., it recovered 25 ft. of oil-cut mud in 45 minutes. Operators drilled ahead, to top the Barnett shale at 6,315 ft. Electric survey was to be run at total depth of 6,344 ft.

In Jack County, Warren Oil Co. 1-B Robertson, M. J. Swann Survey, 1 mile south of Mathis field, was showing for new production in the Bend conglomerate, topped at 4,777 ft. The well is considered a new strike, inasmuch as it is separated from conglomerate production in the Mathis area by dry holes.

Caddo limestone pay in the Manning Mississippian area 2 miles east of Howsley field of Throckmorton County, was reported at Fred M. Manning, Inc., 10 McKnight. It had the Caddo at 4,025 ft., and drilled to 4,056 ft. where a 23-minute drill-stem test produced a flow of gas and recovered 1,800 ft. of oil. Bottom-hole pressure was 1,750 psi. It was drilled on down to 4,163 ft. to run electric survey and set casing. Location of the well is an east offset to Manning 8 McKnight, Mfssissippian discovery for the area.

The same operator's 1 Condron-Davis, southern Throckmorton wildcat, and northwest of Record field, had top of the Mississippi limestone at 4,723 ft. A 1-hour test between 4,723-43 ft. recovered gas and 25 ft. of oil and gas-cut mud. A second test from 4,783-4,823 ft., total depth, recovered 90 ft. of mud in 1 hour. Operators set casing to 4,790 ft. and perforated between 4,732-42 ft. for production tests.

Clay County exploration work included J. S. Abercrombie 1 Hoeffner, Block 12, Bosque County School Land, 5 miles north of Petrolia, which was drilling below 5,785 ft., with no shows. Fain-McGaha located its 1-B Scaline, in Block 2, HT&B Survey, for a west outpost test to Acme Strawn pool. Contract depth is 5,000 ft. Location is approximately half way between the Acme field and S. D. Johnson 1 F. Wines, Lot 4, Block 1, Clark & Plumb Survey, prospective Simpson discovery.

NORTH CENTRAL TEXAS (DISTRICTS 7-B AND 9) SUCCESSFUL WILDCATS

Archer County: Reno Oil Co. 1 L. F. Wilson Est., Geraldine Sur., 5 mi. S of Holliday, pumped 6 bbl. of oil from sand at 1,573-82 ft., TD.

Montague County: Sinclair Prairie Oil Co. 1 Mary Gronow, L. F. Fisch Sur., 1 mi. SW of Montague, pumped 127 bbl. of 41°-gravity oil from 4,079-89 ft., TD 6,490 ft.

EASTERN TEXAS

Additional Production for Carthage's East Side

DALLAS.—Additional oil production was added to the eastern side of Carthage gas field at Rogers Lacy, Inc., 2 John Smith-Frost Unit 1 W. J. B. Hooper Survey, 4½ miles southwest of Deadwood. From perforations in the upper part of the Lower Pettit, at 5,906-16 ft., the well flowed approximately 10 bbl. of oil an hour through ¼-in. tubing choke, on a gas-oil ratio of 600 cu. ft. The well was to be completed dually from the Pettit and the Travis Peak. Completion tests in the Pettit gaged 12 bbl. of oil in 17 hours through ¼-in. choke, with gas-oil ratio at 500 cu. ft., and casing pressure at 300 psi.

In Wood County, Humble Oil & Refining Co. 1 Rhodes et al, Joshua Groce Survey, was preparing to core below 8,125 ft. It cored no shows in limestone between 8,057-65 ft., and a drill-stem test of the upper Rodessa between 8,020-65 ft., open 1 hour and 9 minutes, recovered 2,024 ft. of water cushion, plus 92 ft. of drilling mud.

The Texas Co. 1 R. F. Broadway, second well and southwest offset to the Blackfoot discovery in Anderson County, acidized open hole between packer at 9,670 ft. and plugged-back total depth of 9,770 ft. Pressure in the well built up to 3,600 psi., and when opened it flowed wash water and acid water. It then made several heads of acid water and gas, and died. Operators were swabbing down. The Texas Co. 1 Barnard, Rinehart Survey, about 1 mile northeast of the Blackfoot discovery, was below 8,200 ft. in lime and shale.

Cass County operations included W. A. Patterson 1 J. C. Turner, wildcat test 1 mile west of Avinger, which was shut down for orders at corrected total depth of 3,994 ft. A drill-stem test between 3,950-94 ft., using ¼-in. chokes, raised no surface pressure and recovered 60 ft. of drilling mud, with no shows, in 30 minutes. Shell Oil Co., Inc., 1 Gerald Smith, 2½ miles west of Bloomburg, was drilling below 9,680 ft. in shale and sand. Last formation top reported was the Travis Peak at 7,045 ft.

In Bowie County, W. M. Coats 1 S. H. Hall, ½ mile northeast of College Hill, reported probable sample tops on the Travis Peak at 5,540-50 ft., and the Cotton Valley at 6,540-50 ft. It continued drilling below 7,233 ft. in sand and shale.

In Harrison County, Arrow Drilling Co. 1 Mrs. Fannie Allen, 4 miles southeast of Leigh, was drilling below 6,170 ft. in sand and shale. It had a show of oil in cuttings at 5,930-40 ft. In Henderson County, W. B. Hinton 1 Thornton, south of Malakoff, was drilling at 8,765 ft. in sand and shale. Shell

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Oil Co., Inc., 1 F. E. Lumpkin, 4 miles southwest of Cedarville, was below 9,806 ft. In Freestone County, Humble Oil & Refining Co. 1 R. P. McWatters, south of Freestone, was drilling below 10,321 ft. in hard sand and shale, 18,883 ft. below top of the Travis Peak. Magnolia Petroleum 1 Fair, deep test 2 miles north of Mount Sylvan, Smith County, set casing to 10,492 ft., 2 ft. off bottom according to electrical survey.

KANSAS

Cities Service Extends Zurich Townsite Pool

CITIES SERVICE OIL CO. has completed its 1 Bartos for a 3,000-bbl. daily potential to extend Zurich townsite pool, Rooks County, ½ mile to north. Test is producing from upper 7 ft. of Arbuckle lime, topped at 3,622 ft. Location is SW SW NE 27-9s-19w.

Nadel and Gussman 1 Marcotte, NW NW SW 26-9-20, Rooks County, wildcat 3 miles northeast of Palco pool, swabbed 92 bbl. in an hour, 2,000 ft. off bottom. Well penetrated Arbuckle at 3,803 ft. and porosity and staining was noted from 3,812-14 ft.

Two McPherson County wildcats have gotten shows in the Mississippi and are awaiting drilling-in. They are Barbara Oil Co. 1 Brucker, SE SE NW 27-19-1, 1½ miles east of Ritz-Canton pool, and Westgate-Greenland and Mallard Drilling Co. 1 Burk, NW NE SE 7-18-1, 1 mile south of Hoffsommer pool.

M. A. Isern 1 Karst, SE SE SE 10-16-14, Barton County, wildcat ¾ mile east of Chase pool, has set casing at 2,915 ft. to test show in Lansing Kansas City.

Sohio Petroleum Co. 1 Schrepel, SE SE SE 12-21-12, pool-opener of Sandago pool, Stafford County, last July, has been plugged back to Lansing-Kansas City from which it made potential of 427 bbl. daily. Well was originally completed in Arbuckle with potential of 363 bbl. Arbuckle top was 3,480 ft. and Lansing 3,185 ft.

For the week, 54 new locations and 54 completions were registered in the state. Most active county was Butler with 10 locations and 8 completions. Other leaders included Barton with 6 locations and 9 completions, Rice with 8 and 7, and Ellis with 5 and 3.

KANSAS SUCCESSFUL WILDCATS

Butler County: Adair 1 Corbett, NW NE NW 26-29s-5e, IPP 35 bbl., Bartlesville 2,813 ft., TD 2,826 ft.

Rice County: Ash 1 Wendel A, SW SW NW 16-19s-10w, IP 25 bbl., Arbuckle 3,325 ft., TD 3,357 ft.

KANSAS WILDCAT FAILURES

Barber County: Cities Service 1 Riepe, NW SW NW 12-31s-15w, dry, TD 4,808 ft.

Vickers Petroleum 1 Carter, SW SE NE 21-31s-10w, dry, TD 4,990 ft.

Barton County: Lotus Oil Co. 1 Felt, NE NE SW 28-20s-15w, dry, TD 3,961 ft.

Cowley County: Coop. Ref. Assn. and Holland 1 Utt, SW SE SW 27-32s-7e, dry, TD 3,311 ft.

Harvey County: Polenski 1 Kirkpatrick, SE SE SW 26-22s-2e, dry, TD 2,855 ft.

Lane County: Alexander 1 Buxton, C NW SW 8-16s-30w, dry, TD 4,446 ft.

Pawnee County: Gabbert & Lindas et al 1 Farrell, NE NE NE 18-22s-20w, dry, TD 4,973 ft.

Huber & Goodpaster 1 Maybach, NE NE NW 2-23s-15w, dry, TD 4,125 ft.

Pottawatomie County: Wood 2 Umschied, SE NE NW 16-9s-9e, dry, TD 1,500 ft.

Stafford County: Musgrove Petroleum 1 Grunder, SE SE SE 12-25s-15w, dry, TD 4,550 ft.

Sumner County: Mid-Continent Petroleum 1 Mary Thompson, NW NW SW 5-35s-3w, dry, TD 5,132 ft.

OKLAHOMA

First Bromide Production Proven for North Antioch

MAGNOLIA PETROLEUM CO. has proved first Bromide production for North Antioch pool, Garvin County, with its 1 Foreman Bull, NW NW NE 16-3n-2w. Well made two drill-stem tests of first Bromide, which was topped at 6,277 ft., and flowed an estimated 20 bbl. of oil per hour with 1,000 M.c.f. of gas daily on one test at 6,327-41 ft. Well is being drilled ahead to second Bromide.

West limits of the 1947 discovery, Iconium Northwest pool, Logan County, have been defined by Blackwell Oil & Gas Co. and George W. Deck. Blackwell's 2 Ball, SW SW SW 33-17n-1e, had first Wilcox at

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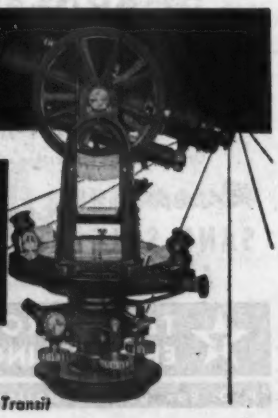

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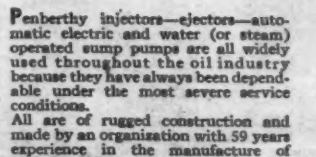

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5,187 ft. and recovered salty-mud and a very slight show of oil on test at 5,189 ft. In second Wilcox, test of interval from 5,251-62 ft. recovered 1,000 ft. of salt water in 40 minutes. Deck's 1 Dudeck, NE NW NW 4-16n-1e, hit second Wilcox at 5,239-55 ft., and drilled out plug and into sand for show of oil and salt water.

Phillips Petroleum Co. 1 Tarrant, C NE NE 20-2n-2w, Garvin County, wildcat west of Northeast Elmore pool, has run 5½-in. casing. Total depth is 8,251 ft., and drill-stem test was made at 8,208 ft. with unannounced results.

Magnolia Petroleum Co. 1 Mary Jack, C NW SW 32-29n-10w, wildcat in northern Alfalfa County, recovered 1½ ft. of sand with faint oil odor and 5½ ft. of dolomitic sand with shale streaks on core from 5,455-62 ft. Previously a drill-stem test at 5,444-55 ft. recovered 90 ft. of drilling mud.

OKLAHOMA SUCCESSFUL WILDCATS

Garvin County: Samedan 1 Duker, SW SW NW 23-2n-1w, IP 15 bbl., pay 4,681-96 ft., TD 4,733 ft.

Grady County: Texas 1 Hutson, SW SE SW 31-4n-5w, IP 31 bbl., pay 4,138-58 ft., TD 6,224 ft.,
Gulf 1 Ida, SE NW NE NW 4-4n-6w, IP 82 bbl., Spears pay 11,977-12,004 ft., TD 13,100 ft.

Hughes County: Chapman 1 Bruner, NE NW NW 15-7n-9e, IP 90 bbl., Booch pay 3,017-45 ft., TD 3,045 ft.

Oklahoma County Peppers 1 Eastland, NW SW NW 32-13n-2w, IP 150 bbl., Unc.-B'D 6,175-215 ft.

OKLAHOMA WILDCAT FAILURES

Cotton County: Boroughs 1 Rich, SW SW SW 35-2s-13w, dry, TD 1,810 ft.

Hughes County: Skelly 1 Pollock, NE NW NE 3-7n-10e, dry, TD 3,587 ft.
Deep Rock 1 Susie, SE SE NW 19-9n-11e, dry, TD 3,999 ft.

Kiowa County: Royal 1 Schimmel, SE NE NW 29-7n-15w, dry, TD 2,052 ft.

Lincoln County: Mee 1 Barrett, SW NE SE 13-16n-2e, dry, TD 4,942 ft.

Noble County: McMahon 1 Zavodny, SW SW SW 22-23n-1w, dry, TD 4,642 ft.

Oklahoma County: British-American 1 Nelson, SE NE SW 3-13n-1w, dry, TD 6,107 ft.

Osage County: Oliphant, NE NE NE 9-25n-3e, dry, TD 2,941 ft.

Payne County: Dirickson 1 McGuire, NE SE NE 11-18n-3e, dry, TD 4,322 ft.

Seminole County: Gem Oil 2 Emorthla, NW NE NW 5-5n-6e, dry, TD 3,261 ft.

CALIFORNIA

Stuck Drill Pipe Delays Standard's Deep Wildcat

LOS ANGELES.—Standard of California 1 Maxwell, wildcat near Montalvo in Ventura County, 23-2n-23w, was within 127 ft. of breaking the world's depth record this week when the drill pipe froze at 11,660 ft. Efforts to free it have subsequently proved unsuccessful although circulation is being maintained. The well had reached a depth of 17,696 ft. when the pipe stuck at 11,660 ft. inside the 7-in. casing which is set at 11,877 ft. This is the first delay that has occurred since the well was spudded last June 6. The operator is continuing to circulate with oil in the hope of freeing the fish.

Norris Oil Co.'s recent oil discovery in the Cuyama area of San Luis Obispo County is stimulating exploration there. The company's Cuyama 2 was brought in a few weeks ago making about 300 bbl. a day of 22°-gravity paraffin oil from a depth of 1,918 ft. A contract has been made with Anderson and associates of Santa Maria to develop the lease which approximates 2,760 acres. Other operators who have entered the area are Cuyama Oil Co. which has made a location for a well in 25-11n-28w, 800 ft. west of the discovery well, and Gene Reid Drilling, Inc., which is leveling a drill site in 26-11n-28w, ¾ mile west of the discovery. E. Jorgensen 1 Indian, in 23-11n-28w, has reached a depth of 2,085 ft. with no important showings reported to date.

The Texas Co. will drill a deep test in the Ramona field of Ventura County and has made a location for 26 Kern in 18-4n-17w. Objective is the Bering sand, which is the fifth producing zone in the adjacent Del Valle field. The Ramona anticline is located north and west of the Del Valle anticline and is separated from it by a shallow anticline. There are presently three producing zones in the Ramona field, the Bankline, Kern and Del Valle, or black zone. The Bering zone at Ramona should be found near the 8,000-ft. level.

Standard of California said last week that its Kettleman Hills Middle Dome Eocene discovery well, 73-30V in 30-23s-19e, represented an investment of over a million dollars, but that the well was "apparently a success." Production was given as 488 bbl. of 47.3°-gravity oil and 4,200,000 cu. ft. of gas. The well, which is bottomed at 12,281 ft., took more than 2 years to drill. Further development of the area, the company stated, will be on a unit basis under the terms of the Kettleman Hills Middle Dome unit agreement.

OHIO, KENTUCKY

Perry County Drilling Activity at Record High

COLUMBUS.—Perry County is experiencing a record high in drilling activity for recent years with between 40 and 50 strings of tools working. In the Sego pool in Madi-

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son Township, two wells were completed during the week. Oxford Oil 1 Wm. Elliot, Section 22, made 384,000 cu. ft. and a good show of oil. In 24 hours after a 90-qt. shot, it flowed 60 bbl. with an estimated 800,000 cu. ft. gas. Oxford Oil 4 Atha (Shaw), Section 27, made 50 bbl. natural in 36 hours, and flowed 43 bbl. after a 40-qt. shot.

An important extension to the Sayre pool in Bearfield Township, Perry County, was drilled in by Beasley and Lyon on Chas. Finley, Section 14. Clinton sand at 3,726-65 ft. gaged 1,250,000 cu. ft. natural, and 1,300,000 when shut in after shot. The rock pressure was 1,075 lb.

An addition to the Frazier pool in Brush Creek Township, Muskingum County, was drilled in by the Salem Petroleum. Their 4 Chas. W. Tipton, Section 6, logged the Clinton at 3,795-3,855 ft. with 1,152,000 cu. ft. near the bottom. The well is to be tubed natural.

OHIO SUCCESSFUL WILDCAT

Lorain County, Penfield Township: Ohio Fuel Gas 1 H. K. Gustafson, Lot 26, Clinton 2,458-67 ft., 1,330,000 natural, TD 2,468 ft.

WESTERN KENTUCKY

OWENSBORO.—R. Hal Compton and T. M. Galey et al 1 Susie Kirtley, 19-L-28, McClean County, has been completed for 70 bbl. daily to extend Island pool 3 miles to west. Production is from Benoist at 1,778-93 ft. Total depth is 1,794 ft.

Rex Alworth and Ashland 1 Leni Loving, 1-K-25, Hopkins County, wildcat 6 miles northeast of Madisonville, has set casing to test Tar Springs at 2,304-27 ft. One-hour drill-stem test of zone at 2,221-72 ft. got 3,500 M.c.f. of gas.

INDIANA

EVANSVILLE.—George S. Engle and Indiana Farm Bureau 1 John Jourdan, Jr., et al, NW SE SE 18-6s-11w, has been completed for 150 bbl. of oil daily for first Biehl sand production in Belknap pool. Pay is from 1,596-1,613 ft., and total depth is 1,870 ft.

A. B. Barrow 1 Webb Crane, wildcat in SW SW SW 4-3n-4w, Martin County, 3 miles northeast of Loogootee pool, made estimated 200 M.c.f. of gas on test of Devonian sand at 1,497-1,520 ft.

CANADIAN FIELDS

Turner Valley Outpost Placed on Production

CHATHAM.—On the Turner Valley west flank, Home-Millarville 28, LSD 10, 18-21-3w45 outpost well northwest of production, finished with Madison limestone at 8,455-8,899 ft., with initial flow of 880 bbl. a day, and has been placed on steady production. Home-Millarville 27, LSD 16, same section, still farther to the north, with Madison at 8,526-8,981 ft., is testing the zones separately, after getting flush of 38 bbl. an hour. West of the old North Turner Valley area, Home-Millarville 30 got the Madison at 7,933 ft. and is finishing below 8,300 ft.

As a result of the two successful completions on the west flank of the north extension, Home Oil has located three new tests still farther west, all in 18-21-3w5, Home 31 in LSD 2, Home 32 in LSD 6, and Home 33 in LSD 11.

Leduc.—In Leduc field, official production figures have been given on three more Imperial completions. Imperial 20, LSD 8, 34-50-26w4, finished at 5,295 ft., has 155 bbl. on 11/64-in. choke. Imperial 21, LSD 11, 26-50-26w4, at 5,314 ft. has 131 bbl. on 10/64-in. choke. Imperial 22, LSD 2, 26-50-26w4, has 115 bbl. on 10/64-in. choke. Imperial 23, LSD 1, 21-50-26w4, finished at 5,125 ft., is testing, after acidizing. Imperial 28, LSD 5, 21-50-26w4, finishing at 5,100 ft., on 1-hour drill-stem test at 5,015-70 ft. showed 700,000 cu. ft. of gas with 700 ft. of gasified oil. Four other wells are drilling and three testing with three rigging and five locations.

Atlantic Oils 2, LSD 14, 23-50-26w4, at 5,349 ft. made 110 bbl. an hour flush and 400 bbl. a day on steady open flow. It has been choked down to 185 bbl. a day. Central Pyrcz 2, LSD 13, 25-50-26w4, at 5,295 ft. flowed 90 bbl. an hour with 350 cu. ft. gas-oil ratio and is being placed in steady production. Globe-Leduc West 4, LSD 15, 34-50-26w4, finished at 5,286 ft., is swabbing, with production indicated. East Leduc-South Brazeau 3, LSD 7, 9-50-26w4, got 500,000 cu. ft. gas in drill-stem test of the D-2 zone and is deepening below 5,273 ft. to test D-3 Continental-Leduc 1, LSD 2, 9-50-26w4, on initial test at 5,160-80 ft., showed 60 ft. of drilling mud, and is deepening. Independent companies have one other well testing, four drilling and eight locations.

Woodbend.—In the Woodbend area, 3½ miles northwest of the nearest Leduc production, Imperial-Woodbend 1, LSD 5, 15-51-26w4, is coring and testing in the D-3 zone with good showings.

Bantry Lake.—In the Bantry Lake area, southern Alberta, Imperial-California Standard 1, LSD 1, 2-18-13w4, at 4,824 ft. is making production tests of oil in the basal Cretaceous formation.

Lloydminster.—In the Alberta section of Lloydminster field, Imperial-Hudson's Bay 1, finished at 2,079 ft., flowed 15 bbl. a day on 24-hour test. Granleduc 1, LSD 7, 14-50-2w4, finished at 1,969 ft., is on pump, and making 95 bbl. Granleduc 2, same LSD, testing at 1,975 ft. On the Saskatchewan side, Imperial Oil is drilling Imperial-H. B. Furness 1 in LSD 8, 7-48-27w3, in Hudson's Bay acreage southeast of Lloydminster.

Rust Preventive Stops Rust Effectively

EVANSTON, ILL.—The oil industry's ancient enemy, rust, can be licked at low cost with Rust-Oleum. It's highly resistant to dampness, brine, fumes, and general weather conditions. Rust-Oleum gives lasting protection for all rustable metal surfaces—indoors or out.

Rust-Oleum forms a tough, enduring coating that protects roofs, tanks, machinery, pipes, structural steel, metal buildings, and other rustable metal from the ravages of rust. Rust-Oleum outlasts ordinary protective materials two to ten times, depending on conditions under which it is used.

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STATISTICS and T

WEEKLY WELL COMPLETIONS . . . WEEK ENDED JANUARY 24, 1948

	Total of all wells					Cum.		Wildcat completions and discoveries					Cumulative total, 1948				
	Comp.	Oil	Gas	Dry	Footage	1948	1947	Oil	Dist.	Gas	Dry	Total	Oil	Dist.	Gas	Dry	Total
New York	34	17	0	*17	34,080	143	110	0	0	0	0	0	0	0	0	0	0
Pennsylvania	64	30	3	†31	113,202	261	247	0	0	0	1	1	0	0	0	4	4
West Virginia	11	3	7	1	22,612	50	47	0	0	0	0	0	0	0	4	7	11
Ohio	20	5	8	7	59,137	87	102	0	0	1	1	2	1	0	2	2	5
Indiana	21	10	2	9	39,949	63	35	0	0	0	0	0	0	0	0	0	0
Kentucky	10	4	0	6	15,514	48	34	0	0	0	0	0	0	0	0	1	1
Illinois	41	28	0	13	102,526	174	154	0	0	0	5	5	3	0	0	26	29
Michigan	14	7	3	4	27,445	69	76	2	0	3	3	8	2	0	3	24	29
Kansas	51	26	4	‡21	220,649	205	197	2	0	0	11	13	3	0	0	21	24
Neb., Mo., Iowa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oklahoma	78	46	3	29	281,045	271	312	5	0	0	10	15	12	0	3	48	63
Texas	206	115	13	78	925,776	791	539	3	0	0	45	48	23	0	4	171	198
North Central (Dist. 7-B & 9)	66	31	0	35	182,992	240	170	2	0	0	19	21	14	0	0	65	79
West (Dist. 7-C & 8)	45	38	1	6	202,027	201	137	0	0	0	3	3	2	0	0	13	15
Panhandle (dist. 10)	17	6	10	1	49,920	52	30	0	0	0	0	0	0	0	0	0	0
Eastern (Dist. 5 & 6)	12	4	0	8	56,905	46	32	0	0	0	6	6	3	0	0	14	17
Gulf Coast (Dist. 2 & 3)	34	18	2	14	196,356	127	130	1	0	0	10	11	3	0	2	38	43
Southwest (Dist. 1 & 4)	32	18	0	14	237,576	125	40	0	0	0	7	7	1	0	2	41	44
Louisiana	21	10	4	7	89,200	147	85	0	0	0	2	2	1	1	0	14	16
Northern	15	8	4	3	38,907	100	43	0	0	0	0	0	0	0	0	9	9
Southern	6	2	0	4	50,293	47	42	0	0	0	2	2	1	1	0	5	7
Arkansas	5	4	0	1	22,857	34	18	0	0	0	1	1	1	0	0	9	10
Mississippi	9	5	0	4	80,754	36	30	0	0	0	2	2	2	0	0	7	9
Southeastern States	2	1	0	1	23,507	4	4	0	0	0	1	1	0	0	0	3	3
Montana	6	3	0	3	21,899	25	14	0	0	0	3	3	1	0	0	4	5
Wyoming	7	6	0	1	35,220	34	18	0	0	0	0	0	3	0	0	1	4
Colorado-Utah	4	4	0	0	26,232	24	13	0	0	0	0	0	0	0	0	1	1
New Mexico	11	9	1	1	46,992	57	33	1	0	0	0	1	1	0	0	1	2
California	58	53	0	5	225,833	184	154	0	0	0	5	5	1	0	0	19	20
Total United States	673	386	48	239	2,414,429	2,707	2,222	13	0	4	90	107	54	1	16	363	434
Total previous week	739	410	58	271	2,572,054	2,034	1,701	17	1	5	113	136	41	1	12	273	327
Total January 25, 1947	521	277	71	173	1,727,062			8	0	5	69	82	37	0	8	293	338

Service wells included: *17, †30, ‡1.

CRUDE PRICES AND REFINERY ACTIVITY

GRAVITY SCHEDULES

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated.

Gravity—	Signal Hill, Calif.	Oklahoma, Kansas	Gulf Coast Tex.†	West Tex.‡
18-18.9	$2.17	....	....	....
19-19.9	2.19	....	....	....
20-20.9	2.21	$2.25	....	$2.12
21-21.9	2.23	2.27	....	2.14
22-22.9	2.27	2.29	....	2.16
23-23.9	2.30	2.31	....	2.18
24-24.9	2.34	2.33	$2.56	2.20
25-25.9	2.38	2.35	2.58	2.22
26-26.9	2.41	2.37	2.60	2.24
27-27.9	2.45	2.39	2.62	2.26
28-28.9	2.49	2.41	2.64	2.28
29-29.9	2.52	2.43	2.66	2.30
30-30.9	2.56	2.45	2.68	2.32
31-31.9	2.59	2.47	2.70	2.34
32-32.9	2.62	2.49	2.72	2.36
33-33.9	....	2.51	2.74	2.38
34-34.9	....	2.53	2.76	2.40
35-35.9	....	2.55	2.78	2.42
36-36.9	....	2.57	2.80	2.44
37-37.9	....	2.59	2.82	2.46
38-38.9	....	2.61	2.84	2.48
39-39.9	....	2.63	2.86	2.50
40 and above	....	2.65	2.88	2.53

†For crude from Daboval, El Campo, and Sand Point. ‡Includes Lea County New Mexico.

A.P.I. REFINERY REPORT WEEK ENDED JANUARY 17

(Thousands of barrels)

District—	Crude runs, daily avg.	Production: Gasoline†	Kerosine	Gas & dist. oil	Residual	Stocks at refineries, bulk terminals, in transit and in pipe lines: Gasoline*	Kerosine	Gas & dist. oil	Residual
East Coast	786	1,807	354	1,338	1,510	20,467	4,915	10,636	7,199
Appalachian:									
District 1	102	289	47	94	86	2,305	250	534	410
District 2	76	251	33	82	118	1,135	121	305	185
Ind., Ill., Ky.	889	2,770	524	1,048	1,062	18,617	2,241	6,335	4,743
Okla., Kans., Mo.	458	1,583	206	651	484	8,931	716	2,717	1,576
Inland Texas	269	1,105	145	161	463	3,580	455	493	788
Tex. Gulf Coast	1,260	3,966	638	2,252	1,842	17,692	1,841	6,746	6,884
La. Gulf Coast	424	1,188	362	779	516	5,251	1,026	2,530	1,809
N. La. and Ark.	80	215	56	80	133	1,723	236	379	151
Rocky Mountain:									
New Mexico	12	35	4	11	27	91	25	21	29
Other Rocky Mtn.	154	472	31	172	298	2,306	145	768	617
California	834	2,555	89	828	2,341	16,653	1,004	13,018	27,210
January 17, 1948	5,344	16,236	2,489	7,496	8,880	98,751	12,975	44,482	51,601
January 10, 1948	5,289	16,289	2,290	7,471	8,776	96,698	14,536	46,785	51,935
January 18, 1947	4,711	14,434	2,326	5,271	8,176	96,354	15,723	53,293	49,846

*Finished and unfinished. †At refineries including natural blended.

Bureau of Mines crude-oil stocks 219,998,000 bbl. as of January 10—down 227,000 bbl. One year ago 220,553,000 bbl.

FLAT CRUDE PRICES

Representative posted schedules per bbl.		Pecos County, Texas (Yates)	1.85
East Texas	$2.65	Bradford, Pennsylvania	5.00
Kettleman Hills, California*	2.14	Eastern Ill. and Western Ind.†	2.77
Beauregard Parish	2.60	Tomball, Texas Gulf Coast	2.63
Illinois Basin	2.77	*37°-37.9°. †35° and above.	

TRENDS

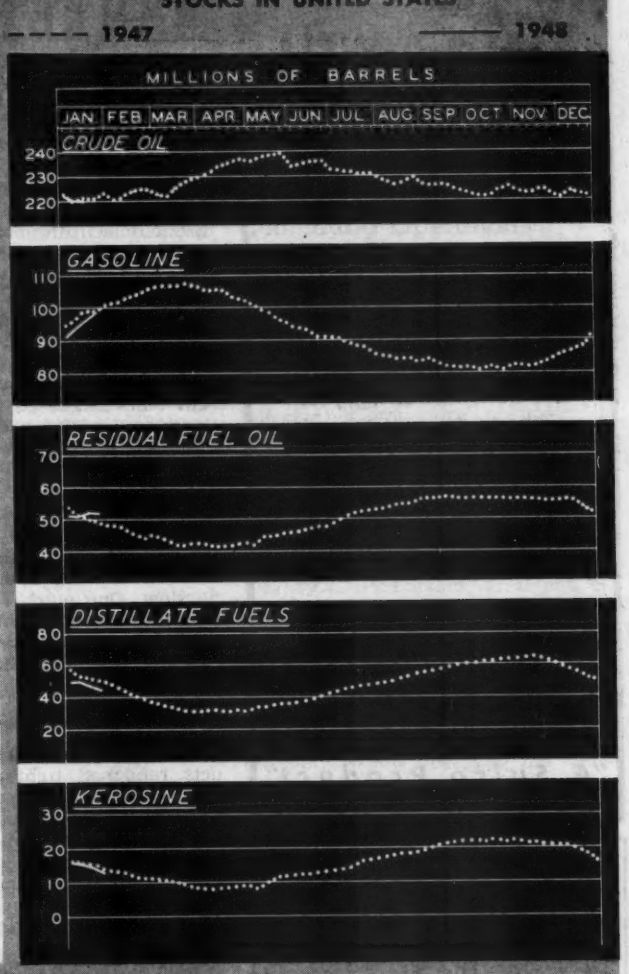
DAILY AVERAGE PRODUCTION FOR WEEK

	Jan. 24 crude oil	B. of M. Jan. demand	Jan. 17 crude oil
Alabama	1,300	1,500	1,350
Arkansas	87,000	82,000	85,800
California	934,900	930,000	933,600
Colorado	46,660	47,000	46,640
Eastern	61,980	64,900	62,800
Florida	825	1,000	875
Illinois	167,800	185,000	170,400
Indiana	16,900	16,000	17,200
Kansas	295,850	306,000	294,550
Kentucky	25,900	26,000	27,100
Louisiana	472,750	453,000	473,150
North Louisiana	118,750	.....	119,150
South Louisiana	354,000	.....	354,000
Michigan	46,200	45,000	44,490
Mississippi	117,200	106,000	110,400
Montana	23,730	24,000	25,090
Nebraska	500	600	500
New Mexico	123,100	125,000	123,100
Oklahoma	409,450	405,000	407,000
Texas	2,385,700	2,310,000	2,385,700
Dist. 1 (Southwest)	25,600	.....	25,600
Dist. 2 (Southwest)	168,350	.....	168,350
Dist. 4 (Southwest)	255,500	.....	255,500
Dist. 3 (Gulf Coast)	496,750	.....	496,750
Dist. 5 (Eastern)	44,125	.....	44,125
Dist. 6 (Eastern)	120,875	.....	120,875
East Texas Field	294,500	.....	294,500
Dist. 7-C (West)	42,875	.....	42,875
Dist. 8 (West)	659,250	.....	659,250
Dist. 7-B (W. Central)	42,950	.....	42,950
Dist. 9 (N. Central)	142,725	.....	142,725
Dist. 10 (Panhandle)	92,200	.....	92,200
Wyoming	132,760	127,000	131,390
Total United States	*5,350,505	5,255,000	5,341,135
Change from prev. wk., up	9,370		

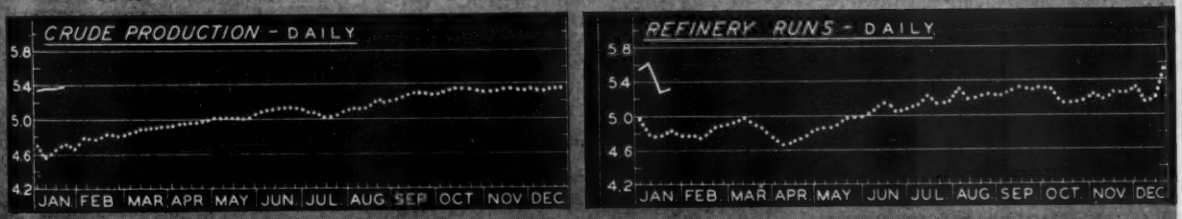
Total production January 1-January 24... †129,054,905 bbl.
Same period last year (crude plus cond.).. 111,786,155 bbl.

*Not incl. 47,730 bbl. condensate. †Incl. 1,145,520 bbl. condensate.

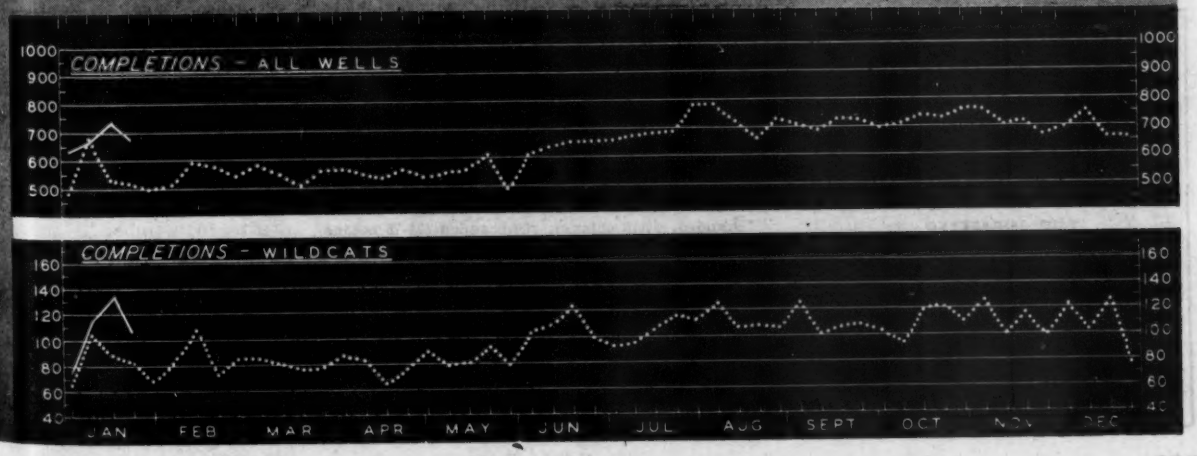
STOCKS IN UNITED STATES



DAILY OPERATIONS



WEEKLY COMPLETIONS



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Oil Drilling Compounds

Memphis 2, Tenn.

"A Sulco Product"

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MARKETS

BOTH products on the open market and the means to move them were reported unusually short in the Gulf Coast area in the past week. Severe winter weather brought numerous calls for heating oils from distributors in the northern and eastern sections of the country. Marketers were told that price was no objective in obtaining material. However, prices for both contract and spot-market shipments were generally unchanged except for a few isolated instances of offers far above the current market. Posted prices remained unchanged and were described by one observer as being practically "stagnant," not stable.

The weather also made more acute the already short supply of tank cars. Suppliers were avoiding tying up cars on some long hauls and in areas where movement is known to be slow. One marketer said the underlying cause of the shortage appeared to be the heavy use of tank cars to move crude oil to Gulf refineries, particularly from West Texas.

Trading Prevalent

In the Mid-Continent area all products remained tight and few shipments were reported around the posted price level. One large supplier was reported to be moving No. 2 at 12¼-12½ cents with the buyer furnishing the cars. One observer reported that swapping and trading was prevalent in getting materials and particularly to loosen up any available tank cars. Nearly all movements were reported as being in buyers' cars. The situation, according to one shipper is "getting a little tighter and premiums are not subsiding."

With the exception of a few "indiscreet" marketers who are tending to force prices up the general price level in the Mid-Continent area has remained about the same. Buyers and distributors from the East and the Middle West have persistently contacted the shippers and marketers of the Mid-Continent area in an attempt to secure desperately needed burning oils.

Along the Atlantic seaboard prices were generally unchanged. However, one large terminal operator said he was looking for as much No. 2 as he could get at 18 cents per gallon, but all he could find was 3,000 bbl. at 19½ cents per gallon. Heating oils were extremely tight and with the continued cold weather around this area the demand has been consistently strong and all suppliers have been struggling to obtain what material they can find available.

Tank Cars Short

According to Max W. Ball, director of the Department of Interior's Oil and Gas Division, there are 7,000 fewer tank cars in operation than during the war, and that industry had "grossly misguessed" its tanker needs. Nevertheless there are some who contend that the transportation situation will be much improved by summer of this year.

A recent Wall Street Journal survey indicated that premium payments are again reaching serious proportions. The survey credited to one oil executive as saying that there is just as much, if not more, premium buying of crude oil going on now as before the boost of 50 cents per barrel. Premiums are reported to be running up to 25 cents a barrel and in some cases a little higher.

Representative Quotations

Representative spot-market quotations of leading suppliers as of January 26, 1948. Figures are f.o.b. plant for tank-car shipment in cents per gallon, except for residual fuel oil which shows the price per barrel and wax, in cents per pound.

GASOLINE, KEROSINE, AND FUEL OILS

	Mid-Continent Group 3	New York Harbor	Texas Gulf Coast
Regular gasoline, 73-75 octane	10½-11½	11.6-12* 10.5-12.2†	10.9-13
Premium gasoline, 78-80 octane	11¾-12½	10.6-13.4	12.9-13½
42-44 w.w. kerosine	10-10½	9.8-10.8	10¼-12
No. 2 straw fuel oil	9½-11	8.9-9.9	9.05-11½
No. 6 residual	$2.50-2.90	$3.03-3.90	$2.56-3.50

*Branded (74-76 octane); †Unbranded (74-76 octane).

NATURAL GASOLINE

	Group 3	North Texas	N. La.
Grade 26-70	8½	8	8¼
Grade 18-55	10.2	9.6	9.9

LUBRICATING OILS

South Texas

200 vis., No. 2-3 neutral	13-14.5
750 vis., No. 3-4 neutral	15-17.25
2,000 No. 5-6 neutral	17-18½

LUBRICATING OILS

Mid-Continent

150-160 vis., D bright stock, 0-10 pp.	30-38
200 vis. No. 3 neutral, 0-10 pp.	20-21

Western Pennsylvania

145-155 vis. 10 p.t. bright stock	47
180 vis. p.t. neutral	46

CRUDE-SCALE WAX

Mid-Continent

130-132 A.S.T.M. melting point	8½-9¼

EQUIPMENT MEN ... in the News

Pauline Appointed Works Manager

J. Robert Pauline has been appointed works manager for the Kellogg Division of American Brake Shoe Co., New York.

Pauline, former assistant to the vice president in charge of operations and engineering, has served in various supervisory capacities since 1943 when he first joined Brake Shoe as an engineer. Prior to 1943 he was connected with Burnham Boiler Corp. in Irvington, N. Y.

In his new position he will continue to be located at the division headquarters in Rochester, N. Y.

Hunt Tool Purchases Swivel Joint Rights

Purchase of exclusive manufacturing and distribution rights to the Roofe swivel joint, in domestic and foreign fields, is announced by Hunt Tool Co., Houston. Hunt Tool has taken over the entire production of the Roofe swivel joint along with some shop production equipment and shop personnel of the Roofe company.

Additional new specialized production equipment will be purchased and installed immediately in order to greatly increase output of the Roofe swivel joint for the oil industry.

Sales of the joint in domestic fields will be handled through Hunt Tool Co. Export sales will be handled by Hunt Export Co., with offices in Houston, New York, Buenos Aires, Port of Spain, and Mexico City.

Project Fabrication Expands

The initial step in the expansion program of Project Fabrication Corp., steel fabricators, was completed with the opening on January 15 of its new shop in College Point, L. I., N. Y. This shop was specially built for the handling of larger and more massive items of equipment which, in the opinion of J. P. O'Donnell, president, the firm will be called upon to fabricate.

Project Fabrication Corp. is backed by a corps of over 90 designers and engineers who design either equipment or complete plants to meet the requirements of the client. All equipment manufactured by the company together with standard equipment purchased to complete the plant, is erected and operated in the field by its affiliate, Project Construction Corp.

Standco Names Abegg & Reinhold

Standco Brake Lining Co., Houston, announces the appointment of Abegg & Reinhold, Ltd., of 2538-41 East Twenty-sixth Street, Los Angeles, as sole California distributors for Standco oil-field brake lining.

Abegg & Reinhold, the manufacturers of "Varco" slush-pump lines and rods, and for many years active distributors of nationally known and accepted lines, are enlarging their sales force to give better coverage and more prompt and efficient service.

Fleming Elected President

H. H. FLEMING

Hart H. Fleming, a vice president and director of National Foam System, Inc., Philadelphia, has been elected president of this fire-protection-equipment and foam-manufacturing company. He succeeds Fisher L. Boyd, who has been named chairman of the board.

George Blair has been reelected as vice president of National Foam System, with L. H. Souder named treasurer as well as secretary of the company. Frank R. Wallace, president of Tabor Manufacturing Co., Philadelphia, has been elected a director of National Foam System.

Spartan Tool Begins Cementing Operations

The first oil-well-cementing unit of Spartan Tool & Service Co., Houston, recently has completed its first oil-well-cementing job near Victoria, Tex., on a well owned by John Coffee, Houston. Lon H. Cron & Son were the drilling contractors. H. F. (Blackie) Clark, vice president in charge of field operations for Spartan, supervised the operation of the cementing unit. Wayne Dodson was the cementer and Leroy Shook represented the Spartan engineering department.

Spartan Tool was organized in mid 1947 by C. P. Parsons, president; H. F. Clark; Turner Briggs, vice president in charge of sales; and William H. Quinette, secretary-treasurer. B. R. Thompson handles the export business for the company. Spartan has 75 employes at the present time.

In addition to well cementing the company is now operating the "Perfo-Tester," a combination gun perforator and casing testing device which was acquired through the purchase of Hunt-Clark Co. several months ago.

The main offices are 2101 Esperson Building, Houston, and the main plant is at 2101 Old Spanish Trail.

Hurst President of Aeroquip

Peter F. Hurst has been elected president of Aeroquip Corp. Jackson, Mich. Hurst was instrumental in the organization of the company in 1940, and was previously its executive vice president and general manager. He is also director and president of Eltron, Inc., of Anotreat, Inc., and Metalco, Inc., all of Jackson.

Aeroquip Corp. manufactures flexible hose lines, fittings, and hydraulic accessories, while Eltron, Inc., is en-

New oil-well-cementing unit of Spartan Tool & Service Co., Houston, is the first of 50 units to be completed and placed in operation by the company. This unit recently has finished a job on a well near Victoria, Tex., using 525 sacks of cement

gaged in the development and manufacture of electronic products. Hurst is a member of S.A.E. and the Institute of Aeronautical Sciences.

Two New Officers of Raymond Concrete Pile

Myron W. Krueger has been elected treasurer of Raymond Concrete Pile Co., heavy-construction contractors of New York, and Howard P. Maxton has been elected secretary and assistant treasurer. These new officers fill the vacancy created by the retirement of Paul D. Case, who will continue as a director.

Krueger was with Carnegie-Illinois Steel Corp., Pittsburgh, as assistant comptroller, where he was responsible for direction of more than 6,000 employes performing the accounting and clerical functions for the diversified operations of 21 steel plants. Krueger also served with Kimberly Clark Corp. and International Machines Corp.

Maxton has been assistant secretary and assistant treasurer since he joined the Raymond company in 1945. Prior to that he was in the contracts control section, United States Navy, Bureau of Yards and Docks, Washington. A graduate civil engineer of Washington University, St. Louis, and a member of American Society of Civil Engineers, Maxton has served in various capacities with contracting organizations in the Middle West, on construction of the Madden Dam in the Canal Zone, and with Tennessee Valley Authority.

Foreign Trade Council Elects Directors

Among oil-industry equipment men recently reelected to the board of directors of the National Foreign Trade Council were: L. C. Boos, United States Rubber Export Co.; A. G. Cameron, Goodyear Tire & Rubber Export Co.; J. D. Fletcher, Caterpillar Tractor Co.; Alexander MacKenzie, Union Carbide & Carbon Corp.; Edward Riley, General Motors Corp.; and George W. Wolf, United States Steel Export Co.

Davison New Sales Manager

R. W. Davison has been appointed manager of sales, hot rolled products division, Sheffield Steel Corp.

Davison has been with Sheffield 7 years. He has served in various capacities, in the reinforcing, bolt and nut, grinding ball, merchant bar, and structural departments. In 1941 he joined the sales force as Kansas City representative, and has held that post until his recent appointment.

De Laval Announces Organizational Changes

Major executive promotions and organizational changes affecting sales, production, and engineering divisions of De Laval Steam Turbine Co., Trenton, N. J., have been announced.

J. P. STEWART

H. G. BAUER

W. A. REYNOLDS

C. A. JURGENSEN

Under the reorganization, a five-member executive committee has been created consisting of H. L. Watson, president, serving as chairman; George C. Stoddard, chairman of the board; Henry W. Johnson, vice president; C. Richard Waller, vice president, and George W. Smith, Jr., assistant to the president.

In executive promotions, J. P. Stewart has been appointed manager of the newly combined commercial and marine sales divisions succeeding H. V. Petersen, who has retired after 34 years' service. H. G. Bauer, manager of the marine division, has been appointed executive engineer of the company. J. W. Hertzler, manager of worm-gear sales since 1924, has retired and is succeeded by W. A. Reynolds, who becomes manager of the combined rotary-pump and worm-gear divisions. C. A. Jurgensen has been appointed acting works manager. Appointment of W. A. Neumann, Jr., as factory controller, assistant treasurer and assistant secretary was announced previously.

Earlier this year Waller, Bauer, and Reynolds were commended by the Bureau of Ships, Navy Department, for outstanding contributions to the successful prosecution of the recent war.

Todd Resigns From Beaumont Well Works

Brooke Todd, for the last 5 years general manager of Beaumont Well Works Co., Beaumont, has announced his resignation.

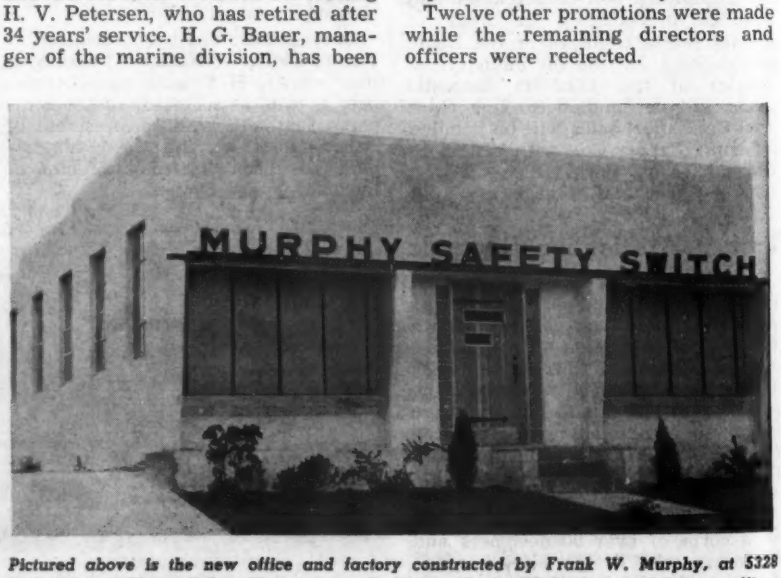
Todd is well known in the Gulf Coast area as a designer and producer of steel forgings for oil-field drilling and producing-equipment manufacturers. Prior to going with Beaumont Well Works he was general manager of Oil City Brass Works, also of Beaumont.

Parker and Mayfield Elected

The board of directors of First National Bank of Fort Worth recently elected E. G. Parker, vice president, to the board, and promoted R. T. Mayfield to a vice president.

Parker has been connected with First National since 1926 and will continue his duties as vice president. Mayfield, formerly an assistant vice president, has served the bank in all departments for over 28 years.

Twelve other promotions were made while the remaining directors and officers were reelected.



Pictured above is the new office and factory constructed by Frank W. Murphy, at 5328 East Admiral Place, Tulsa. The structure is 32 ft. wide by 60 ft. deep and houses offices and complete factory for manufacturing safety switches for pipe line, oil-field, irrigation, automotive, and other types of internal-combustion engines

Minneapolis-Honeywell Holds Sales Convention

A traveling sales convention, which will take officers of the company to both coasts of the United States, as far south as Dallas, and as far north as Toronto, has been announced by Minneapolis-Honeywell Regulator Co. Planning to reach the more than 1,000 field sales personnel of the company in the series of gatherings, seven 3-day meetings have been scheduled in regional headquarter cities.

The main purpose of the meetings is to review sales activities of 1947 and outline the expanded sales plans for 1948. The meetings will be addressed by Harold W. Sweatt, president, and all other home-office executives including Morton L. Morley, vice president in charge of sales for Brown Instrument Division, wholly owned Honeywell subsidiary.

Kidde Establishes Foreign Recharge Stations

A world-wide network of carbon dioxide recharge stations has been established by Walter Kidde & Co., Inc., of Belleville, N. J. The list of stations includes 169 stations in 45 different foreign countries.

These foreign facilities for recharging carbon dioxide cylinders (used for fire-protection equipment and other purposes) constitute the most extensive service of its kind in existence.

The service is necessary to the requirements of carbon dioxide fire-extinguishing systems permanently installed abroad to protect oil refineries, generators, and all kinds of manufacturing facilities.

Grubb Joins Cameron Sales Staff

John Grubb, former president and general manager of Nuwell Tool Co., has joined Cameron Iron Works sales department, effective with the purchase of the assets of Nuwell by Cameron. Grubb, who in recent years has been identified with such prominent oil-field-equipment firms as Baker Oil Tools and Broderick-Bascomb Wire Rope Co., is well known throughout the industry. In his new position he will specialize in the sale of Cameron-Nuwell cementing shoes and collars and will be located in Houston.

Irvin to Venezuela

James K. Irvin, of United States Rubber Export Co., Ltd., has been appointed to a new post in Venezuela. He will be general sales manager of Royal Venezolana, C.A., an affiliate of the export company, with headquarters in Caracas. He will supervise the sales of company products in Venezuela and in the islands of Aruba and Curacao.

Royal Venezolana markets the complete line of U. S. Rubber Export products and also has its own plant for manufacture of tire and tube repair and retread materials.

Hartmann Named General Sales Manager

John A. Roebling's Sons Co., Trenton, N. J., manufacturers of rope and wire products, announces the appointment of E. George Hartmann as general sales manager.

Hartmann, who brings to his new position over 29 years' experience in the wire field, has been associated with the Roebling company since 1940. Widely known in the industry, he is a member of the Wire Association and the American Iron and Steel Institute.

Changes in Continental Supply Co.

Continental Supply Co., Dallas, has announced the following personnel changes which recently became effective.

Lawrence E. Young has been appointed store manager at Russell, Kans., succeeding Roy B. Ball who has been made a sales representative at the same point. Young was formerly floor man at Russell.

William G. Sharp, former salesman at Houma, La., has been appointed store manager at the same location. He succeeds D. L. Cenac who has been transferred to Continental's Houston store.

R. W. Griffin, former store manager at Casper, Wyo., has been moved to the Laurel, Miss., store in the same capacity. He succeeds T. F. Morton who has been transferred to Casper as manager.

Hudgins Appointed Sales Agent

C. Lee Cook Manufacturing Co., Louisville, announces the association of T. F. Hudgins with its Mid-Continent agent, Woobank Machinery Co., Tulsa.

Hudgins has long been active in the oil and natural-gas industry. He was formerly vice president and sales manager for Cooper-Bessemer Corp. and later held the position of export sales manager for Clark Brothers Co.

Headquarters for his new post will be at 431 Kress Building, Houston.

Puckett Joins du Pont

Afton D. Puckett, widely known in the petroleum industry for his work in antiknock properties of motor fuels for the Government, has joined the du Pont company's petroleum chemicals division. Puckett has been put in charge of operations of all antiknock equipment in connection with du Pont's entry into the direct marketing of tetraethyl lead compounds. He will be stationed at the engineering laboratory at Deepwater Point, N. J.

He has been associated successively with Tide Water Associated Oil Co., the National Bureau of Standards, and the Bureau of Mines Petroleum Experiment Station.

Puckett has written a research paper, "Knock Ratings of Gasoline Substitutes," which was printed in Journal of Research, of the National Bureau of Standards, November 1945. He was also coauthor of "Ignition Qualities of Hydrocarbons in the Diesel Fuel Boiling Range," presented at the Midwest regional meeting of the American Chemical Society in June 1947.

Veteran Mack Official Retires

Ending a 35-year career with Mack Trucks, Inc., C. W. Haseltine, vice president, secretary and treasurer of that organization as well as director of Mack Manufacturing Corp., manufacturing subsidiary, retired at the end of 1947.

Coincident with the news of Haseltine's retirement comes Mack's announcement of the appointment of F. W. Sommer as treasurer and T. V. Homan as secretary of the company.

Sommer, presently assistant secretary and assistant treasurer of Mack Trucks, Inc., joined the organization in 1922 as clerk in the note department. Following a period as division note department head in Mack's Philadelphia office, Sommer returned to headquarters in 1925 to become note auditor for the company. In 1936 the duties of assistant treasurer became Sommer's province, with those of assistant secretary being added in 1941.

Homan, who, like Haseltine, joined Mack in 1912, served initially as clerk in the auditing department. He was appointed assistant treasurer in 1918 and assistant secretary in 1921, and has served continuously in those capacities.

Both Sommer and Homan will make their headquarters in Mack's home office, Empire State Building, New York City.

Classified Advertising

The Market Place for the Oil Industry

UNDISPLAYED

All ads, 10 cents a word. Minimum charge, $2.00 per insertion.
Centered Line, any ad, 75 cents.
Box Numbers count 9 words when replies are to be sent to our Tulsa Office. Replies forwarded without charge.

DISPLAYED, PER INCH

$10.00 per column inch per insertion One-point border and 12-point capitals are allowed. Larger type sizes not accepted.

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COPY DEADLINE, 9:00 a.m. Monday prior to each week's issue.

THE OIL AND GAS JOURNAL
P. O. Box 1260, TULSA, OKLAHOMA

EQUIPMENT FOR SALE

FOR CABLE TOOLS
DEGEN PIPE AND SUPPLY CO.
Box 107, Red Fork Station, Tulsa, Oklahoma

FOR SALE: One 24L Bucyrus-Erie Spudder, 48 ft. derrick, trailer mounted. Machine and motor in good shape. Jack Read, Sottsville, Ky. Phone 385.

FOR SALE at our Chase, Kansas, production office, 1 used Allis Chalmers Model U-6 Skid Type Well Servicing Winch, $1750. Cities Service Oil, Patridge, Bartlesville, Okla.

NEW API BOLTED TANKS

3—10,000 bbl. at New York
1—5000 bbl. at Mobile, Ala.
25—1000 bbl. at New York
14—1000 bbl. at Mobile, Ala.
30—100 bbl. at New York
60—100 bbl. at New Orleans
247—100 bbl. at Stockton, Calif.

R. C. STANHOPE, Inc.
60 E. 42nd St., N.Y. 17, N.Y.

EQUIPMENT FOR SALE

7—No. 3A6 National Drilling Machines with or without Tools and Power. Some of these practically new. Zanesville Tool & Supply Company, 18 Harrison Street, Zanesville, Ohio.

FOR SALE: In the Seminole area, 11—10′ x 40′ Horizontal Storage Tanks. Cities Service Oil, Patridge, Bartlesville, Okla.

FOR SALE: 1—Bucyrus-Erie 36-L Spudder, completely rebuilt, Buda engine GF, 638. 1—4-cylinder Kohler light plant. 1—Steele dog house on skids. L. F. Wilson, Carmi, Ill. Phone 493, or Box 331.

COMPLETE REFINERY: Topping Unit, Thermal Cracking Unit, all auxiliaries, with plans and specifications for installation. Responsible owner of stable crude supply can arrange some payments from proceeds of operation. Box C-176, The Oil and Gas Journal, Tulsa, Oklahoma.

12—NEW 10KW LIGHT PLANTS, AC. 120-240 Volt, Single Phase, 60 Cycle, Generator Driven by Four Cylinder "Jeep" Engine. Steel Skid Mounted, Complete Steel Housing, 12 Volt Electric Start with Battery, Panel Board, Spare Parts and Hand Tools. Export Crated ..... $980.00 each

FOB San Antonio, Texas.
HALLORAN EQUIPMENT CO
431 Kress Bldg. Houston 2, Texas
Phone Capitol 1447

FOR SALE

3—100 h.p. 2 cycle twin cylinder Superior Gas Engines with direct connected compressors. 2 located near Albert, Kansas. Contact Ola Williams, 1 located near Garnett, Kansas. Contact Roy Williams.

SCHERMERHORN OIL CORP.
Kennedy Bldg., Tulsa, Okla.

NEW CENTRIFUGAL PUMPS
Boxed for Export

50 New Byron Jackson 3″, 2-stage Pickup Centrifugal Pumps, direct connected to C-36 Chrysler Engines, complete with spare parts, tools, and skid mounted.

VICTORY SUPPLY COMPANY
120 N. Elgin Tulsa, Okla.

LIQUIDATING MODERN REFINERY

Houston, Texas

PUMPS

Duplex and Simplex steam reciprocating, hot oil and general service. The hot oil pumps have liquid cooled stuffing boxes and steel heads; both types in very desirable sizes such as 6 x 4 x 6, 10 x 6 x 10, 12 x 7 x 12, and many other sizes.

HEAT EXCHANGERS

Enclosed shell and tube types with floating bundle, steel shell and some with Admiralty metal tubes, others steel tubes, in popular surface sizes.

TOWERS

Many excellent towers all welded with cast iron bubble caps and trays with manway at each tray varying in size from 7′-0″ diameter and 60′-0″ high to 4′-6″ diameter to 30′-0″ high. Most of these towers were originally ½″ thick.

GENERAL

Cracking and topping furnaces; vaporizers, receivers, absorbers, steel valves, and instruments; practically everything for a medium pressure modern refinery. Some portions of this refinery never used after installation, other units in use for moderate period of time. Before shutting down all equipment processed for protection for future operation.

Write for complete listing: Brown-Strauss Corp., P. O. Box 78, L. D. 169 (phone), Kansas City 10, Missouri.

EQUIPMENT FOR SALE

FOR SALE—Six gas engines for oil wells. Good condition. $350.00 each. Paxton Oil Syndicate, Stewart Bldg., Paxton, Illinois.

FOR SALE: One Rotary Drilling Rig powered with gas butane engines complete with portable derrick suitable for 4500′ work. Easy terms. Melton Supply Company, Box 1360, Seminole, Oklahoma.

FOR SALE: Failing 1500′ shot hole drill, complete with sand reel, automatic pull-down, 300′ drill rod, hand tools, mounted K-7 International Truck. 500 gallon water tank mounted K-5 International truck. This unit on contract West Texas. Box C-189, The Oil and Gas Journal, Tulsa, Oklahoma.

STAINLESS STEEL TANKS

Surplus Air Corps Pressure Oxygen Tanks. Nine gallon capacity. 12″ dia., 24″ long. Hemispherical ends tapped for ¼″ pipe connections. Some tapped at one end only. Rated strength to 400 psi. 18 gauge pure stainless steel. $15.00 each F.O.B. Specify tapped 1 or 2 ends.

Ireland & Vice, Box 148, Auburn, N. Y.

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2—125 H.P. 350# Working Pressure "OIL WELL BOILERS," EXCELLENT condition. Completely reconditioned. Not used since last approval by State Boiler Inspector. Priced to sell.

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Copper Tubing

5½″ OD, type K, 233 Pieces, 5′ to 19′ majority 19′, 10.68 lbs. to the foot. 3/16″ wall, 4629′.
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